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ABSTRACT

National data indicate that many differences remain between Hispanics and non-Hispanics regarding baccalaureate attainment, even though the general status of Hispanics in higher education has improved. Official data on California students suggest that there is no single point in the California educational pipeline that accounts for the entire gap between Hispanic baccalaureate attainment and the state norm, but that the problem is systemic. The flow of Hispanic baccalaureates is best monitored with longitudinal data. Problems in K-12 attainments among Hispanics affect the pool of potential college freshmen. Brief descriptions are given of some precollege outreach programs in California. Although adequate financial aid is an essential resource for the attainment of a bachelor's degree, it is not the cure-all. Many other resources must also be available on campuses to improve the proportion of Hispanic freshmen who complete the undergraduate curriculum. Basic components of various student services found on campuses are described, and recommendations for their improved operation are given based on observations from students and staff across the country. For the most part, the suggestions call for campuses to initiate new practices. This report concludes by posting results from surveys of 200 college freshmen and seniors, almost all of whom were Hispanic, and 50 college staff members. Findings suggest seven relationships between global campus policies and the generation of more Hispanic baccalaureates. Three appendices present primary and secondary data sources and statistics on Hispanic-serving institutions. (TD)

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Understanding Obstacles and Barriers to Hispanic Baccalaureates

A report for the RAND Corporation by the
Inter-University Program for Latino Research
with support from the Hispanic Scholarship Fund

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Preface

This report was written to provide the Hispanic Scholarship Fund (HSF) with a primer about the current issues, policies, and practices that surround the topic of baccalaureate production among Hispanic students. It also was meant to serve as a guide on how to assess the educational status of Hispanic students at different locales and understand how higher education institutions can establish and monitor campus goals. The hope is that all the information will enable HSF to engage in effective partnerships with more colleges and universities as it works toward sub-stantially increasing the number of bachelor's degrees conferred on Hispanic students each year.

The report begins with a brief description of the extent of the substandard baccalaureate attainment among Hispanics and recent trends in Hispanic and non-Hispanic differences. The comparative statistics derived from national data indicate that many intergroup differences remain unchanged over time, even though the general status of Hispanics in higher education has improved somewhat from previous years. Next there is a description and analysis of where in the educational pipeline Hispanics fail to attain normative achievement. Official data on California students suggest that the national problem to be resolved is systemic. There is no single point in the California educational pipeline that accounts for the entire observed gap between Hispanic baccalaureate attainment and the corresponding state norm. Thus all concerned must make decisions about how resources will be allocated to the various points of the pipeline that need amelioration.

The next section concerns how to best monitor the flow of Hispanic baccalaureates. The primary message is that all concerned are usually best informed by graduation rates generated from longitudinal data. Examples are given to show how compilations of enrollments and graduates derived from cross-sectional data sets can be misleading when they are used to infer student progression through the curriculum or eventual graduation rates. Examples are also given of student differences associated with widely differing admission policies across campuses. For example, student backgrounds and academic outcomes are very different among open-admission colleges, state colleges, state universities, and highly selective private schools. Understanding of these differences leads to better understanding of why institutions may select different priorities and strategies for increasing their annual number of Hispanic baccalaureates. The biggest challenge

any campus could face is when it attracts below average numbers of new Hispanics and fails to generate many bachelor's degrees among the few who do matriculate. It is conceivable that many open-admission campuses attract comparatively large numbers of Hispanic students but show substandard graduation rates. Conversely, it is conceivable that many selective-admission campuses have very high graduation rates but admit few Hispanic students.

Before addressing the specific obstacles students encounter at colleges and universities and how institutions respond to them, the report acknowledges that problems in K–12 attainments among Hispanics affect the pool of potential college freshmen. Here the discussion includes brief descriptions of some precollege outreach programs found in California.

The rationale underpinning the rest of the text is that adequate financial aid is an essential resource for the attainment of a bachelor's degree but it is not the cure-all. Many other resources must also be available on campuses to improve the prevailing proportion of Hispanic freshmen who complete the undergraduate curriculum. Research on college attrition has spawned many services and programs to assist students in overcoming a host of academic obstacles. Here a prime example is academic assistance for passing many general education courses that are prerequisites to gaining entry to the upper division curriculum of higher education. Likewise, research on student integration has generated its own set of sponsored activities to help students remain committed to their original academic goals. Here such things as faculty mentoring programs and collaborative study groups represent campus efforts that connect individual students to the larger campus community by promoting strong personal relationships. Thus one objective of the report is to describe the basic components of the various student services that can be found on campuses today. The introduction for this section is a description of services supported by the federal government. Campuses do not all employ the same set of student services, nor do they necessarily implement similar services in the same way. So the descriptions can serve as benchmarks for understanding how different campuses have opted to institutionalize their student services.

To get a feel for how well there is a mesh between student needs and student services, the report also recounts observations from students and staff across the country about the efficacy of student service programs. The responses are about how satisfied all concerned are with the specific services rendered. The responses do not represent a summary evaluation of any of the

programs across the campus that were observed in the field. Rather they represent commendations or complaints that denote what needs to be in place for student retention programs to be effective. At the end of each general discussion about a particular type of program the report lists a set of recommendations about how programs should strive to operate in the future. For the most part the suggestions represent a call by students and staff for new practices to be initiated by campuses. Of course, the call varied in intensity from place to place, and in some places the recommendations were already being heeded.

The report ends by posting statistical results from two college surveys. The first profile is that of Hispanic and non-Hispanic freshmen. These figures highlight the larger set of needs associated with Hispanic freshmen as they begin their college careers. The second profile is that of Hispanic and non-Hispanic seniors at four-year schools. These figures highlight how Hispanic students negotiate some of the obstacles they encounter. Both sets of numbers suggest some relationships between global campus policies and the generation of more Hispanic baccalaureates. For example:

- Recent SAT and ACT scores suggest that policies designed to abruptly raise admission standards will produce an immediate decline in Hispanic freshmen enrollment at four-year schools (see figure 12).
- Removing precollege instruction for general education classes in math and English will place a disproportionate number of Hispanics at academic risk of not completing their lower-division curriculum requirements (see figures 13–15 and 22).
- If four-year schools do not aggressively reach out to high schools with large numbers of Hispanic students whose parents never attended college, then the size of the Hispanic freshmen class will likely be much less than its potential size (see figure 16).
- If four-year schools do not aggressively reach out to community colleges with large numbers of Hispanic students taking academic courses, then the size of the Hispanic junior class will likely be much less than its potential size (see figure 27).
- Substantial increases in college tuition and fees will lower the number of Hispanics who seek entry into four-year schools as first-time freshmen (see figures 17 and 24).
- Enrollment policies that deter part-time attendance will cause additional difficulties for many Hispanic students who work while attending school (see figure 25).

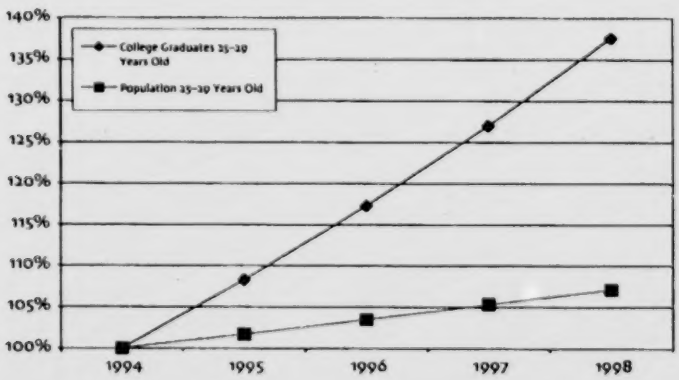
Finally, everyone concerned with baccalaureate attainment among Hispanics must realize that the implementation of any antigrowth policies for colleges and universities will adversely affect the enrollment of Hispanics in higher education.

I. Introduction

1. The Problem

Recent governmental statistical reports on college attainment reveal some seemingly positive signs. At the top of the list is the fact that the number of bachelor's degrees being conferred on Hispanics has been steadily rising. For instance, between 1994 and 1998 the yearly number for Hispanics aged 25–29 years climbed from 210,000 to 289,000 baccalaureates. That represents about a 38 percent increase over the four-year period.

Figure 1. Hispanic Growth Indexes for Baccalaureates and Population

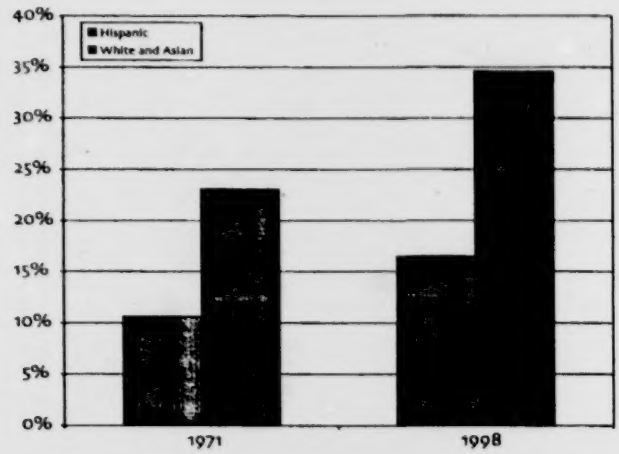


On the surface, the rise in Hispanic degree holders appears to suggest improvement in the process of Hispanic baccalaureate production. But if the process is truly improving, then the annual growth rate of Hispanic degree holders of a specified age should exceed the annual growth rate for the corresponding Hispanic population; otherwise the rising numbers of degrees simply represent increases in population size. Between 1994 and 1998 the data indicate that the growth rate for degrees attained by Hispanics aged 25–29 years was indeed greater than the growth rate for the corresponding Hispanic population. The number of baccalaureates rose by an average of 8 percent each year, whereas the corresponding population grew annually by barely 2 percent. So from this comparison of growth rates, it is safe to assume that some Hispanic improvements occurred during the last half of the 1990s.

Continuation of this positive trend, of course, is a requisite for the proportion of Hispanics receiving bachelor's degrees to ever converge with the national average or reach parity with other

higher-achieving ethnic groups. But before anyone starts predicting equalities in baccalaureate attainment, we must consider how the profile of Hispanic college attainment compares to others.

Figure 2. Baccalaureates per High School Graduates for Ages 25–29 Years

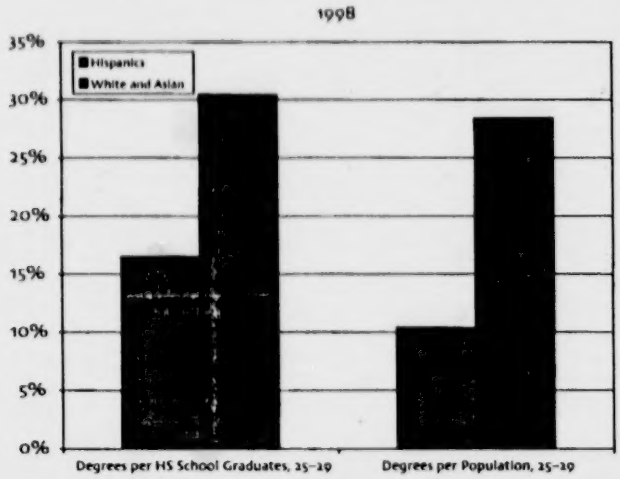


Unfortunately, the answer to the comparative status of Hispanics is not very healthy. They still are well below the attainments of most other groups in the United States. For example, the proportional number of baccalaureates attained by Hispanics aged 25–29 years with high school diplomas did increase between 1971 and 1998, from 10.4 to 16.5 percent. However, similar increases took place in the population at large. As a result, the ratio between the national norm and Hispanics for the production of bachelor's degrees remained essentially the same for the past two decades; that is, Hispanic high school graduates are still only about half as likely than most others to attain bachelor's degrees. So even though Hispanics have made some notable educational gains, the group is not keeping pace with the changing educational status of others.

If we look at population statistics, the Hispanic disparity in degrees per person is even greater. For people aged 25–29 only 10 per 100 Hispanics have a baccalaureate. The national norm for nonminorities in the same age group is about 28 per 100 people. Thus, the Hispanic population of young adults is roughly one-third less likely to possess a higher education degree than most others in the same age cohort. Given this profile, Hispanic workers will continue to be disproportionately underrepresented in the traditional fields that require a college credential, and they may

also become equally underrepresented in such emergent markets as the growing information technology sector.

Figure 3. Percentage of 25- to 29-Year-Olds with Bachelor's Degrees



Obviously both the precollege and postsecondary education experiences of Hispanics are important arenas for studying the parameters of their baccalaureate production. However, much more attention has been given to the high school experience of Hispanics. Every edition of "The Nation's Report Card," for instance, provides information on the lower-than-average Hispanic performance in math, science, reading, and writing among selected grade school students. And various national data sources indicate that Hispanics drop out of high school at much higher rates than non-Hispanics. We know that the relative recency of migration among some Hispanics partly accounts for the primary and secondary schooling gaps, but there still are substantial gaps between the performance of native-born Hispanics and other native-born residents.

This study investigates the college experience of Hispanics and some of the factors that influence their decisions to persevere in their college education. Working to improve the rate of baccalaureate production requires knowledge of several issues: whom to target, what services to deliver, when to initiate interventions, and how to monitor success. These issues are the major topics of this report. Other issues discussed include the properties associated with college gradua-

tion rates, the nature of 'time-to-degree', and guidelines in setting goals for generating more Hispanic bachelor's degrees.

2. Data and Methods

The data sources for this report are varied. Most of the national statistics cited in the text regarding enrollments and degrees conferred may be found in the Current Population Survey (CPS), administered by the US Department of Commerce, Bureau of the Census. Some of the national enrollment data were obtained from the Integrated Postsecondary Education Data System (IPEDS). National statistics on college attainments based on longitudinal data came from published reports from the High School and Beyond (HS&B) study of 1980 sophomores and the Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS: 90/94). Both of these surveys were administered by the National Center for Educational Statistics (NCES). Reports on early retention of new college students came from the ACT national Dropout and Graduation Reports. Other indicators of the national graduation rate came from the NCAA and the Consortium for Student Retention Data Exchange (CSRDE). National information about the risk characteristics of Hispanics currently enrolled at two-year and four-year public colleges and universities were obtained from the Higher Education Research Institute at UCLA. These data represent the latest responses from the Freshman Survey (i.e., 1999 CIRP) and the Senior Survey (i.e., 1999 CSS). Responses from the CIRP are derived from a nationally representative sample that is weighted to reflect population parameters. College enrollment and retention reported for California came from publications provided by the University of California, Office of the President, California State University, Office of the Chancellor, and California Community Colleges, Chancellor's Office. Eligibility data for California high school graduates came from the California Postsecondary Education Commission. (More details in Appendix A.)

Finally, descriptive data about campus services aimed at increasing student retention and students' satisfaction with their delivery were obtained from staff and student focus groups held at six public colleges and universities. These institutions represented campuses that had low, medium, or high concentrations of Hispanic enrollments.

The original aim for the new data collection component of this study was to discern what factors were perceived as the most important impediments to graduation for Hispanic students attending US colleges and universities. The answer was to come from campus voices. The plan was to conduct focus-group interviews with Hispanic undergraduates and relevant staff at several institutions of higher learning. The student respondents would represent four distinct groups in higher education: 1) freshmen recently admitted directly to four-year institutions; 2) seniors at four-year institutions who entered their campus as freshmen; 3) seniors who transferred from community colleges; and 4) undergraduates enrolled at community colleges. The responses from campus staff members came from administrators, program staff, and counselors in student affairs. On most campuses those staff members were responsible for administering student services, including any special retention activities. One tactic, then, was to balance the opinions of currently enrolled students with the perceptions of practitioners working in the field.

The study did not access students who officially withdrew from campuses before completing degree requirements. Similarly, there were no responses from recent graduates. Thus there were no responses from either the students who failed to surmount the obstacles in the path to graduation or those who maneuvered past the same barriers and attained baccalaureates. What was needed, then, was a strategy to identify separate pools of enrolled students that would represent both students who would not complete their academic goals and students who would eventually earn degrees. This meant targeting freshmen and seniors for focus-group interviews. Newly enrolled freshmen at two- and four-year schools served as the primary source for potential dropouts. At a few of the selected schools the probability was that more than half of the incoming freshmen would attain baccalaureates, but at most of the schools dropouts traditionally represented the obvious plurality. Students with senior class status served as our pool of degree holders. On balance, the seniors represented students who would eventually earn baccalaureates. The probability of baccalaureate attainment was less, however, for seniors who had transferred from community colleges. So again, our tactic was to counterbalance the opinions of one group with the perceptions of another. In this case the contrast was between new entrants versus survivors of the lower-division curriculum and a portion of the upper-division curriculum.

When all the focus groups were completed and the data were analyzed, an unanticipated

finding was that neither the students nor the staff spoke in terms of rank order when discussing impediments to degree attainments. So the results of this study do not include a list of the 'most important' or 'least important' obstructions faced by Hispanic students as they work toward bachelor's degrees. The reality is perhaps that no one single force is usually the cause of an individual's withdrawal from campus. Instead, the act of early departure may be the result of multiple, interrelated forces for most dropouts.

The problem of attrition is, of course, a complex one. For example, the difficulty associated with impediments can vary by institution and academic major. Further, individual perceptions of difficulty vary by a student's academic preparation, adjustment skills, and stamina for feelings of disappointment. Moreover, a host of impediments are external to the campus and, therefore, beyond amelioration by campus policies or action.

Taking into account the nature of the student and staff responses, the decision was made to present the core of the data collected in the context of confirmed practices that can increase the overall graduation rate of a campus. So this report describes interventions that can mediate problems and then links them to the corresponding forces that lead to attrition. Most of the positive dialogue that took place in the focus groups served as the basis for describing the components of effective retention programs and services. Much of the negative dialogue that took place centered around the absence of proven interventions or the ineffective administration of the interventions available on campus.

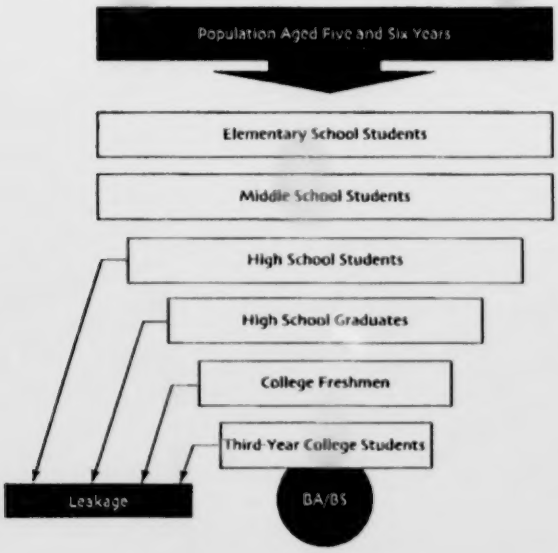
The campus voices the study captures are by no means random ones. On that account, the focus group responses were augmented with other available data. (More details in Appendix B.) The hope is that the compilation of primary and secondary information found herein work together to inform the reader about how to interpret the condition of Hispanic undergraduates and how to better serve them.

II. The Pipeline for Bachelor's Degrees

1. Leaks in the Pipeline

To understand observed levels of baccalaureate production one first needs to understand the general process of conferring bachelor's degrees. Informative discussions of baccalaureate attainment are often organized around the imagery of a segmented pipeline. The first segment of the pipeline is widest and the last segment is the narrowest, and what emerges from the spout are the college graduates. If we model the pipeline after the organization of public school education, the pipeline could have six distinct segments. The population of five- and six-year-olds represents the initial stock of the pipeline. This stock flows into the elementary school segment and then it successively flows into the middle and high school segments The high school population naturally produces the class of high school graduates, which in turn flows into the new class of college freshmen. Students can attain freshman status at both two-year and four-year institutions. Regardless of the entry point into higher education, the common objective of each freshman group is to master the lower-division curriculum and enroll in the upper-division curriculum (i.e., become third-year college students). So the attainment of third-year class-level status represents the last major segment that determines the magnitude of the college graduating class.

Figure 4. Representation of the Baccalaureate Pipeline



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The utility of the pipeline imagery is the vision of one segment feeding another. Of special interest are the junctures of adjacent segments of the pipeline. As the stock of students moves down the pipeline leaks occur, and excessive leaks lead to substandard rates of access (i.e., enrollments) and retention (i.e., completion).

Clearly the profile for the Hispanic pipeline is one characterized by disproportionate leaks. Both national Census data and selected data from individual states indicate that cohorts of five- and six-year-old Hispanics have traditionally generated fewer baccalaureates then most other ethnic cohorts. Further, the leaks appear to be all along the pipeline. So, on balance, Hispanic high school students are less likely to attain high school diplomas and Hispanic high school graduates are less likely to become college students. Then, at college, Hispanic freshmen are less likely to progress to the upper-division college curriculum and Hispanic third-year students are less likely to complete their baccalaureate requirements. All told there could be a two-fold gap in baccalaureate attainment between the Hispanic adult population and the national norm for non-Hispanic adults who attended school in the United States.

Recent data from California public schools numerically illustrate the severity of the leakages affecting Hispanics at every key point in the college pipeline.

There is a definite high school dropout problem. Of the 1992 cohort of more than 100,000 Hispanic 9th graders, less than 60 percent graduated from California public high schools; on the other hand, nearly 80 percent of White and Asian 9th graders received high school diplomas.

There is a college enrollment problem. In fall 1996 about 43 percent of the Hispanic public high school graduates entered California public institutions of higher education as freshmen. For most other ethnic groups the comparable proportion was 50 percent or more.

The college enrollment problem, moreover, spans all segments of public higher education. As expected, most of the Hispanic freshmen enrolled at community colleges. The percentage distribution of the 34,000 Hispanic freshmen enrolled in California in 1996 by sector was: 76 percent at the California Community College System, 16 percent at the California State University System, and 8 percent at the University of California System. Within each of those sectors the Hispanic college enrollment rate was 3 to 6 percentage-points lower than comparable figures for most other ethnic groups.

And, finally, Hispanic freshmen are less likely to eventually earn baccalaureates than most other ethnic groups. For example, Hispanic freshmen who began study at either the University of California or California State University in fall 1996 are very likely to produce graduating classes that are 15 percent smaller than what would be expected if their graduation rates were on par with campus norms.

2. Monitoring the Flow of Baccalaureates

If we just focus on what happens at colleges and universities, then the number of baccalaureates produced by an institution can be monitored effectively by tracking just five basic factors. They are: 1) the number of high school graduates eligible for admission; 2) the size of the pool of high school graduates; 3) the proportion of admits who enroll as first-time freshmen; 4) the percentage of freshmen who complete the lower-division curriculum; and 5) the percentage of upper-division students who complete the requirements of an academic program.

The first factor reflects the front-end of an institution's access function. Institutions set eligibility criteria for admission. The more stringent the criteria the smaller the number of high school graduates who are eligible; the opposite is true for less stringent criteria. If the eligibility criteria are altered, then the campus has decided to adjust the ratio of who can get in and who cannot. Insufficient capacity, for example, is often a reason to lower enrollment demand by raising admission standards. Eligibility criteria vary greatly across the nation. This information is accessible from individual catalogs; however, at this time there is no single repository identifying each institution's cut-off for high school GPA, achievement scores, or high school course-taking patterns. Thus, refined indicators of access may be beyond the reach of most researchers, unless they focus on a manageable set of local campuses. For example, public campuses that belong to a regional

system usually have common criteria posted at a single site. The background characteristics (e.g., high school GPA) of those who enroll at a campus, of course, are indicators of how selective the eligibility criteria of a campus are. However, those who enroll at a campus often have background characteristics that exceed the minimum admission standards. In terms of impact on baccalaureate production, changes in the number of high school graduates who are eligible will eventually

affect the size of the freshman class. An increase in the number eligible, with everything else being equal, means that more high school graduates are meeting the admission standards. This would be another instance where the flow of baccalaureates is affected by something external to a campus. But if a campus raised or lowered its standards, then the subsequent change in the number of potential enrollees would be a function of campus policy. A valuable indicator of how open or restrictive the eligibility criteria are at a campus is an estimate of the proportion of high school graduates who qualify for admission. Such a calculation requires the transcript analysis of random samples of recent high school graduates.

The second factor is a demographic condition. Everything else being equal, an increase or decrease in the size of the pool of high school graduates will eventually produce a corresponding change in the number of baccalaureates. So, as we mentioned above, population growth is something external to a campus that can affect the flow of baccalaureates. National data from the Current Population Survey for October 1994 to October 1998 indicate that the number of Hispanic high school graduates is growing by an annual rate of about 3 percent.

The third factor reflects the back-end of the access function by indicating the yield of new students produced by an institution's outreach activities. The proportion of students who emerge from the admission pool as new enrollments indicates the attractiveness and affordability of a campus. Many campuses generate these yield rates, but they are not always compiled in national or state data sets. Consequently, researchers often have to resort to college-going rates or participation rates where the denominator includes both eligible and ineligible individuals. At the national level the Current Population Survey offers two crude college enrollment rates: 1) enrollment as a percentage of all 18- to 24-year-olds, and 2) enrollment as a percentage of high school graduates. Between 1987 and 1997 the first percentage enrollment indicator for Hispanics rose from 17.7 percent to 22.4 percent; the Hispanic figures for the second indicator rose from 26.6 percent to 36.1 percent. In both of the above indicators the numerator includes both new and continuing students. More valid college-going rates restrict the numerator to just new students. For instance, campus researchers often calculate the ratio of new freshmen at their institutions within the same region to the size of an age-specific cohort for the corresponding region. Or better yet, if school districts count the annual number of high school graduates, then campus researchers

can calculate the college-going rate of recent public high school graduates who attend their college or university. All of the access rates mentioned above reflect the combined effects of admission standards, attractiveness, and affordability.

The last two factors reflect an institution's retention function. Most attrition takes place in the first two years after the matriculation of an entering freshman class, though there are instances when some notable attrition takes place after students confront the upper-division curriculum. The greatest annual loss of students almost always occurs after the freshman year. On balance, increases in retention, either in the early or later years, usually reflect an institution's focus on promoting higher graduation rates; although it is possible for retention increases to occur because incoming students are better prepared than their predecessors. The two essential requirements for assessing changes in the retention function are the establishment of successive cohorts of incoming freshmen and procedures for tracking their academic progress over time. Everything else being equal, increased retention rates will yield higher numbers of baccalaureates. Declining rates of enrollment, however, can offset baccalaureate gains associated with rising retention rates. According to ACT data on retention, at four-year institutions about one-quarter of new freshmen leave before the start of their second year of study. And at two-year public institutions the comparable figure is nearly 48 percent.

Right now the major source of retention and graduation data is the NCAA. The data they collect come from all NCAA Division I member colleges and universities. Besides graduation rates for athletes, there are comparable rates for the general student body. In both cases the NCAA Graduation-Rate Report indicates only part of the graduation phenomenon. For the student body, only student-athletes who enroll as freshmen, enroll full-time in their first term, and graduate from that institution within six years of initial enrollment are tracked. Students who transfer in good academic standing and graduate elsewhere count against their original institution as not graduating and are not counted in the freshman cohort rate for their second institution. There are no comparable data for Division II or Division III member schools. The Division I rates represent the same kind of data now collected by the government-supplied Integrated Postsecondary Education Data System (IPEDS) graduation-rate survey administered to all colleges and universities that receive federal dollars. Two editions of the IPEDS graduate rate survey have been submitted to the

Department of Education, but the data have yet to be released to the public.

Cohort data from the High School and Beyond Study of 1980 high school sophomores indicate that about 28 percent of white students eventually earn bachelor's degrees. The comparable figure for Hispanics is about 10 percent. Of course, the 18 percentage-point difference between these two ethnic cohorts reflects differences in high school completion rates, freshmen college-going rates, and college graduation rates.

The latest Division I graduation-rate report examined the 1992 entering class of student-athletes. The collective student body posted a 56 percent graduation rate between fall 1992 and summer 1999. Another source of graduation rates is the Consortium for Student Retention Data Exchange. The membership includes 176 public and 56 private institutions. Like the NCAA rates, the six-year graduation rate for all 232 institutions was 53 percent. The six-year graduation rate for Hispanics was 16 percentage-points less than the rate for all institutions. The consortium's rates, like the NCAA rates, are calculated by the same method outlined by the IPEDS graduation rate survey. How close any of these rates are to the true national averages is unknown at this time, but each of the rates reflects the experience of students at four-year institutions. As such, these cohort-based graduation rates are primary indicators of how well students and campuses mesh with regard to degree completion.

For many colleges and universities, transfers from other institutions account for a sizable part of their undergraduate enrollment. In the main, these institutions are four-year campuses that have local community colleges serving as feeder schools. For them two additional factors must be considered when monitoring the flow of baccalaureates: 1) the number of students enrolled at community colleges attempting college credit units, and 2) the percentage of community college students who transfer to four-year campuses each year. Data on the first factor are collected nationally by the Current Population Survey. In 1998, for example, over 60 percent of Hispanic college enrollments were concentrated in two-year higher education institutions. The norm for the nation was just 45 percent. The latter factor is still, for the most part, an undocumented phenomenon. There have been some efforts to calculate a transfer rate that describes the movement of students from two-year to four-year institutions, but standard definitions and practices have not been implemented by many institutions. The government-supplied IPEDS graduation rate survey

makes provisions for counting transfers from one institution to another, but the transfer-out section of the survey is not employed by all because the transfer-out enumeration is optional. Moreover, when it is applied, the practice is often limited to selected subgroups of students (e.g., just full-time enrollments). Findings from the ACT Dropout and Graduations Report indicate that just 53 percent of public two-year freshmen return for a second year of study and 33 percent earn AA degrees in three years. A very optimistic conjecture about the national transfer rate would place it between 33 and 53 percent. A pessimistic conjecture would place it well below 33 percent, under the assumption that not all AA degree holders seek bachelor's degrees.

III. Baccalaureates in California: A Statistical Model

Various California offices work in conjunction with California public colleges and universities to document how students, including Hispanics, proceed through the public education system on their way to bachelor's degrees. There are three segments of public higher education in California: The University of California (i.e., research universities), California State University (i.e., comprehensive universities), and California Community Colleges (i.e., two-year institutions). The process begins with an assessment of what proportion of a high school graduation class is eligible for entry.

1. Eligibility

As we have mentioned, colleges and universities can use a variety of requirements to determine who is eligible to be admitted for enrollment. At the low-end community colleges usually have an open enrollment policy that accepts all high school graduates and non–high school graduates older than a set age limit. California community colleges accept all high school graduates or anyone over 19 years of age. Besides high school completion, high school grade-point averages (GPAs) are the core of most four-year institutions' requirements, and many of them augment official GPAs with a battery of achievement test scores.

A most telling piece of feedback for any institution with selective admission criteria can be an assessment of how many high school graduates are eligible for entry as new students. The State of California periodically engages in such an assessment for public high school graduates. By collecting and evaluating a random sample of all transcripts for recent high school graduates, the state can determine what proportion of a high school graduation class is eligible to enter a campus of either the University of California or California State University. The former is mandated to create admission policies that would allow students graduating in about the 12.5th percentile to be admitted; and the latter is mandated to create admission policies that would allow students graduating in about the 33rd percentile to be admitted.

In fall 1996 California high school graduates could achieve eligibility for the University of California in three ways:

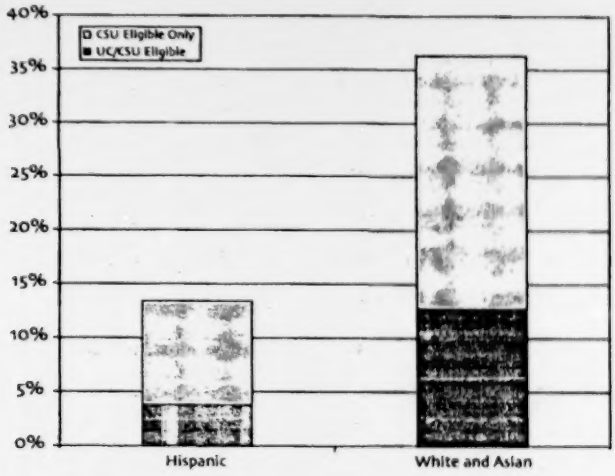
- By earning a grade-point average of 3.3 or better in the 15 required college preparatory courses, commonly known as the 'A-F' course pattern, taking the SAT I or the ACT college admission examination, and taking three SAT II Subject examinations. (The scores on SAT II tests have no influence on a graduate's eligibility for admission.)
- By earning a grade-point average between 2.82 and 3.29 in the required courses and scoring at a level on a college admissions test — the SAT I or ACT — that qualifies the student on the University's Eligibility Index and taking three SAT II Subject examinations, although scores on the SAT II tests have no bearing on a graduate's eligibility.
- By scoring a total of 1,400 on SAT I or 31 on the ACT and scoring a combined 1,760 on three SAT II Subject tests with a minimum score of 530 on each.

In fall 1996 California's high school graduates could achieve eligibility for freshman admission to California State University by first completing 15 college preparatory courses. Then, graduates could achieve eligibility by either of the following two means:

- By earning an overall grade-point average of 3.0 or greater in their tenth, eleventh, and twelfth grade courses, excluding physical education and military science.
- By earning an overall grade point average between 2.0 and 2.99 and having college admission test scores — SAT I or ACT — that qualified on the State University's Eligibility Index. (The Index is a weighted ranking of grade-point averages and college admission examination scores such that the lower the student's grade-point average, the higher they must score on an admission test to be eligible.)

In 1998 just over half of the public high school students eligible to enter the University of California or California State University did so (17.2 percent vs. 33.0 percent).

Figure 5. Proportion of California Public High School Graduates Eligible for Admission to a California Public Four-Year Institution



Regardless of what four-year segment in California we are talking about, Hispanics are much less likely than nonminorities to have the high school credentials necessary to be admitted to a university. Thus each segment is challenged in how it can offer greater access to Hispanics. One solution is to admit more students by using alternative criteria for selected students. Both the University of California and California State University allow some limited entry via this route. So both institutions report 'exceptions' enrollments for new freshmen. At the University of California the percentage is below 5 percent and at California State University the percentage is below 15 percent for entering cohorts of freshmen. These exceptions usually represent students who are missing one of the admission requirements but have other accomplishments that indicate a potential to succeed.

2. Applicant Pool

The second stage of monitoring is an assessment of the number of high school graduates. Each year the California State Department of Education counts the number of high school graduates as part of its census enumeration of K–12 enrollments. In June 1998 the number of Hispanic public school graduates numbered over 82,700. On average, the Hispanic high school graduate population has been growing at an average annual rate of just over 2 percent. This

percentage increase target for enrollment should exceed the percentage representing growth, if campuses are actively trying to increase access to Hispanic students.

3.Freshman Participation Rates

The next stage is college-going behavior among those with high school diplomas. In fall 1998 new freshman enrollments for Hispanics to state community colleges, comprehensive universities, and research universities were 26,687, 6,144, and 2,384, respectively. An unambiguous indictor of college-going behavior is the freshman participation rate. Here the numerator is the number of public high school graduates newly enrolled at a college or university, and the denominator is the number of public high school graduates from the previous academic year. The clarity of this indicator is that it does not mix new enrollments with continuing enrollments. In California the college-going rate, on average, for public high school Hispanics to public institutions of higher education has been about 40 percent, with three-quarters of the entrants going to community colleges. More specifically, the first-time participation rate of Hispanics is about 30 percent for two-year colleges, 7 percent for comprehensive universities, and 3 percent for research universities.

4. Persistence to Degree

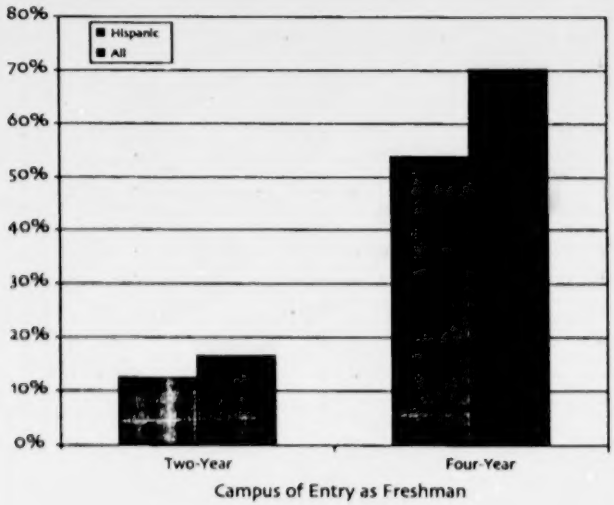
The first important indicator on future graduation rates is the proportion of new freshmen who survived their first year. It is calculated by establishing the count of an incoming cohort at the beginning of a year, then counting how many re-enrolled for a second year of study. If you divide the latter number by the size of the cohort, you get a first-year retention rate. At the University of California about 90 percent of Hispanic freshmen return. The comparable figure for California State University is about 78 percent. Second-year rates drop to about 80 percent and 53 percent for the two systems, respectively. Estimates for the proportion who attain third-year status is a product of the first- and second-year retention rates. For California the average third-year rate at public four-year universities is about 60 percent.

At California community colleges less than 40 percent of new Hispanic freshmen return for a second year of study (these are students who enrolled in an academic curriculum during their first year). These students may end their stay at the community colleges with an associate's degree,

but in terms of baccalaureate production the most cogent indicator to observe is the transfer rate to four-year institutions. This rate represents the relative number of new undergraduate enrollments that emerge from a cohort of new community college students who attempt credit-bearing courses. Calculation of the rate requires four-year institutions to match community college matriculation records for new freshman with their matriculation records of new undergraduate transfers. This data collection was done in California for community college students who began study in 1990–94. The findings indicated that close to one-fourth of all new community college freshmen eventually transfer to public four-year institutions. For Hispanics the rate is no doubt slightly lower. What happens to new transfers at four-year schools? In terms of retention they do not exhibit the high level of re-enrollment demonstrated by other upper classmen. After one year they exhibit retention rates very much like the new freshmen rates at the same school, though unlike freshmen in four-year schools, transfers do not have a high attrition rate after the second year of study. Graduation rates for transfers at the University of California are only on par with comparable freshman rates, and graduation rates for transfers at California State University are only a little higher than comparable freshman rates. So, on balance, graduation rates for transfers are less than the rates for juniors who started their college careers at four-year schools in California.

The campus route with the highest probability for attaining a baccalaureate is to be admitted to a research university. The second highest route is to be admitted to a comprehensive institution. And the route with the lowest probability is entry through a community college. All of which coincides with the common finding that campus admission requirements are correlated with graduation rates; that is, the more stringent the requirements, the higher the expectant rate. And this is of course true for both minority and majority students. In California the difference between the two basic paths is substantial. Naturally, the lower rates for two-year institutions reflect such things as an open-admission policy, the experimenter status of many new students (i.e., they attempt course work but never earn any units), and the generally lower socioeconomic status of community college students than attendees at four-year schools.

Figure 6. Public Graduation Rates for California Freshmen by Path of Entry



The additional barriers that community college students face in their quest to attain bachelor's degrees have been recognized by others (e.g., K. J. Dougherty, "Community Colleges and Baccalaureate Attainment," *The Journal of Higher Education*, March/April 1992: 188–214). In short, community college students across the country appear to be less likely than freshmen at four-year schools to 1) complete the lower-division college curriculum, 2) enroll in upper-division course work (i.e., transfer), and 3) complete the upper-division requirement for graduation. Moreover, the gap between community college students and those who enter four-year schools as new freshmen does not seem to be an artifact of just background differences between students. There also appear to be several institutional characteristics that contribute to the gap. For example, at community colleges, it has been suggested that there is a need for 1) more early retention services, 2) better academic preparation for upper-division courses, and 3) better advising on how to transfer. At four-year schools there have been proposals that transfer students should 1) have better greater financial aid opportunities, 2) have more transfer units accepted, and 3) receive some retention services to help them survive their upper-division classes at a new campus.

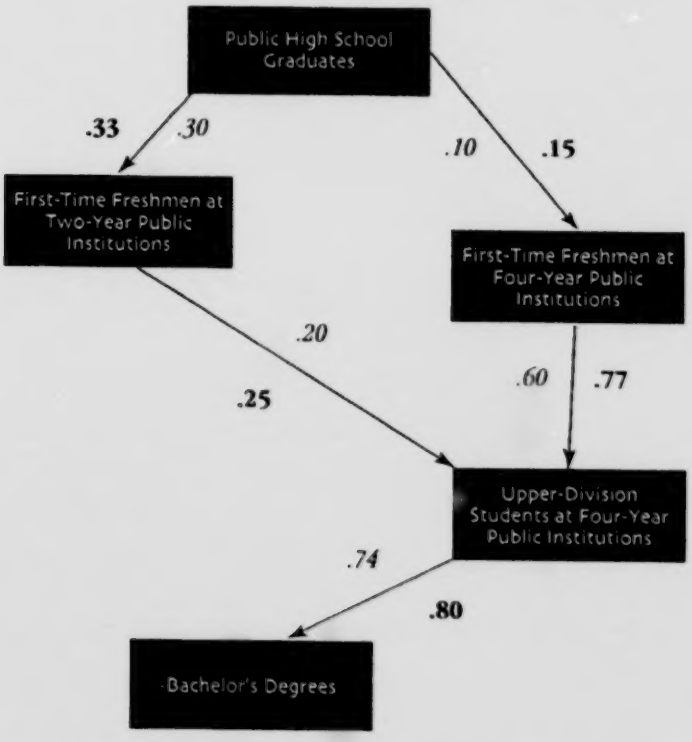
The lower proportion of Hispanic baccalaureates coming from community college enrollments (cited above) should not deter efforts to promote more Hispanic baccalaureates by way of the transfer function. Instead, the lower proportion should caution people from viewing all community

college enrollments as potential transfers to four-year schools. Efforts to promote more transfer must be bolstered by reliable community college data that break down total enrollments into more useful student categories. So, for example, policymakers and planners need to know such things as how many community college students have expressed an intent to transfer, how many are enrolled in the transfer curriculum, and how many are continuing students with significant numbers of transfer credits earned.

The diagram displayed in Figure 7 summarizes the probabilities of passing through any one of the stages to baccalaureate attainment, beginning with enrollment as new freshmen. The italic numbers represent Hispanics and the bold numbers represent nonminorities; thus the Hispanic gap is self-evident at each stage.

If you multiply the proportions through for each population, you find that roughly 16 percent of the total California public high school population receive degrees from California public colleges and universities and the comparable figure for Hispanics is close to 9 percent. The 7 percentage-point difference between the two categories is not necessarily the most exact magnitude of the Hispanic gap. The model is just a set of indicators; it is not a template for a full audit of higher education experience among California residents. So the percentages of degree holders who eventually emerge from pools of public high school graduates is larger than the model's implied proportions. Missing, for example, are the outcomes for public high school students who went on to private schools or out-of-state schools or those who transferred to and from comprehensive schools and research schools during their undergraduate careers. Certainly Hispanics students have fewer of the background assets that would be associated with these alternative paths to a baccalaureate.

Figure 7. Estimates of Flow for the California Baccalaureate Pipeline



Note: Italic numbers denote Hispanic rate estimates and bold numbers denote rate estimates for nonminorities.

The benefit from the model of indicators is that it gives an informative view of the disparities between Hispanics and others regarding the production of baccalaureates. The total differential is based upon a set of numbers that mirrors the process of baccalaureate attainment, so the model can yield information on where it might be most advantageous to intervene in the process. For example, the model could yield estimates of the impact of improving the flow rates at any stage of the baccalaureate process for Hispanics.

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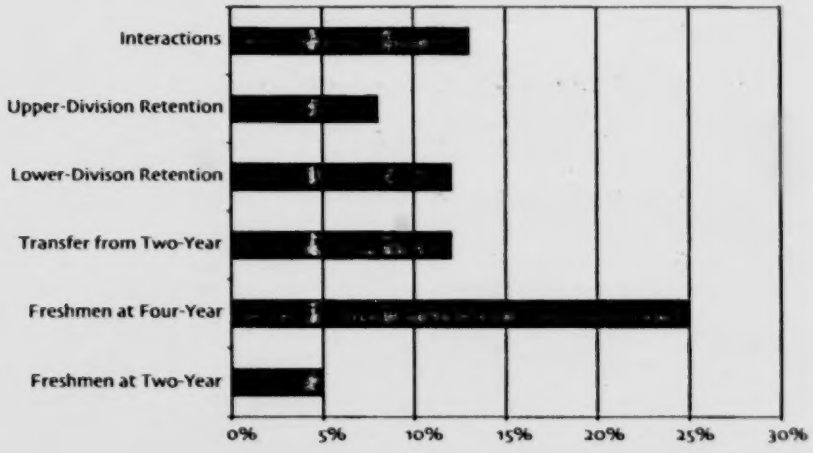
Figure 8. Potential Improvement in Hispanic Baccalaureate Production If They Reached Parity in Flow Rates with Nonminorities

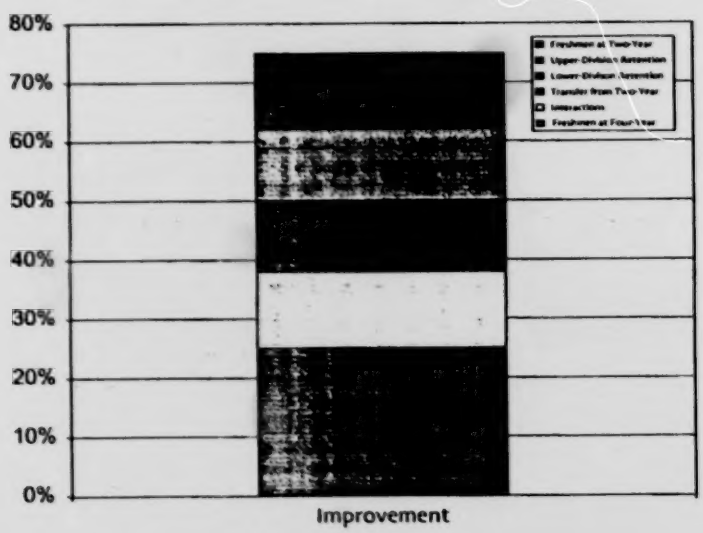


To illustrate the added feature of the model, let's assume that the process for Hispanics improved such that they exhibited the same flow rates as nonminorities. If there were parity, how many more degrees could be attributed to each stage? Figure 7 displays the answer in relative terms. If, for example, Hispanic high school students became freshmen at two-year colleges at the same rate as nonminorities but all the other Hispanic rates remained the same, then there would be a 5 percent increase in the annual number of Hispanic baccalaureates. If Hispanic high school students became freshman at four-year universities at the same rate as nonminorities with nothing else changing, then there would be a 25 percent increase in the annual number of Hispanic baccalaureates. Similarly, the independent effect of either an improved transfer rate or an improved retention rate among lower-division students at four-year schools would be a 12 percent increase in Hispanic baccalaureates. Finally, if the retention of upper-division students improved to parity with nonminorities at four-year schools, then there would be an 8 percent increase in Hispanic baccalaureates. From this statistical exercise it appears that getting more eligible students to attend four-year schools is the single most fertile area for producing large increases in the number of Hispanic baccalaureates.

Naturally there are multiple ways to assess how things can improve. And if the assumption is that each stage will improve simultaneously, then there is the expectation of interaction effects. For instance, if more Hispanics enroll at four-year schools and more of them survive the lower-division curriculum, then the expected increase in degrees will be more than the sum of the two independent effects associated with each stage. The additional degrees are attributed to the interaction associated with the two concurrent changes. If all the stages reached parity with nonminorities with regard to their flow rates, the model indicates that there would be an additional 13 percent increase in degrees due to interactions.

Figure 9 displays all these potential increases cumulatively stacked from higher to lower impact. As a whole, they suggest that the annual number Hispanic degrees conferred would rise 75 percent in California if parity were reached with nonminorities. Parity, of course, is only one kind of assumption that can be made about improvement. In some cases it may be useful to project the impact of Hispanic improvements that are above or below parity with nonminorities.

Figure 9. Potential Improvement in Hispanic Baccalaureate Production If They Reached Parity in Flow Rates with Nonminorities



One instance where it may be reasonable to assume Hispanic flow rates could exceed nonminority rates is the freshman participation rate for community colleges. Since Hispanic eligibility rates are so much lower than the state norm, community colleges are perhaps the easiest vehicles for increasing Hispanic college-going behavior. If, for example, the freshman participation rate for community colleges jumped from 30 percent to 38 percent in California, then Hispanics would have reached parity with nonminorities regarding overall freshman participation; it just would be that Hispanics would be overrepresented in open-admission schools and underrepresented in schools with selective-admission policies. Such an increase could yield a 13 percent increase in Hispanic degrees. As a contrast, if there were just a 3 percent increase regarding freshman participation at four-year schools, there could be a 15 percent gain in Hispanic degrees. This is a reminder that, in the short-run, some paths are potentially more productive that others.

The results of our analysis model to understand the impact of attaining parity at different points in the pipeline are not unique. Data for the nation or another region would no doubt produce other findings. Moreover, other methods would surely produce alternative figures.

The long-term solution for increasing the output of baccalaureates among Hispanics is a more productive primary and secondary school system for socially and economically different students. If that could happen instantly, then we are still talking about a minimum elapsed time of 13 years before all students could benefit completely from the systemic reform of K–12 instruction. The much longer timeframe most people envision for widespread change in K–12 outcomes is one reason why institutions of higher education are besieged with outside pressures to increase minority student access and retention on their campuses with short-term solutions.

IV. Properties of the Graduation Rate

In the late sixties and early seventies many colleges and universities responded to outside pressures for creating greater access to student groups that were traditionally underrepresented in four-year colleges and universities. In many cases that was done by creating admission exceptions for ineligible but promising students. Experience showed that this strategy was ineffective if it was not coupled with special retention services. Over time many observers have recognized the graduation rate for cohorts of incoming students as the best indicator of baccalaureate production. So, for instance, if an existing retention program on a campus wants to show its effectiveness, it usually tries to show an increase in the graduation rate of selected students over time. Or a proposed program, to make its case for funding, will establish a graduation target that implies a graduation-rate improvement as one of the by-products of the services rendered.

Because the graduation rate is so crucial to goal setting and goal evaluation, it is important to understand the nature of the rate. In the absence of fact-based referents, the likelihood of generating false expectation runs high. Analyses annually performed by the Consortium for Student Retention Data Exchange illustrates many of the properties for the graduation rate that observers should know. Below are nine results it highlights.

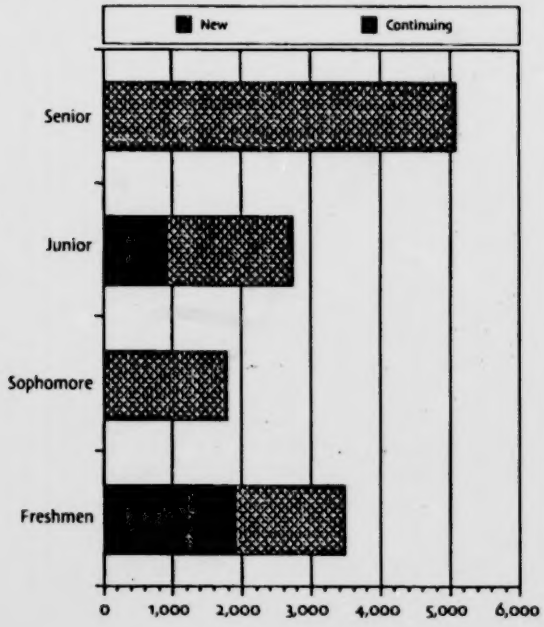
- ***Freshman year is the most crucial period in student retention.*** The data from 232 colleges and universities that confer baccalaureates indicate that half of all dropouts left before the start of their second year of study. Thus early intervention is crucial to making significant gains in the graduation rate on most campuses.
- ***Degree completion requires more than four years for most students.*** The data suggest that more than half of all graduates will take longer than four years to complete their academic programs. California data suggest that the average time-to-degree for Hispanic students is even greater. At the University of California about three-fourths of Hispanic graduates who began study as freshmen complete their degree requirement in over four years. At California State University the majority of Hispanic graduates complete their studies in over six years.
- ***The eventual degree completion rate for entering freshmen is estimated to be 58 percent.*** This proportion is a reminder that 100 percent graduation rates are not the norm at four-year institutions. There are institutions with 90 percent rates, but they are outliers in the national distribution of graduation rates. Campuses should not set graduation goals that are unrealistic for their applicant pool.

- ***Students attending private institutions graduate earlier and at a higher rate.*** These two facts relate to the selectivity of most private schools and to differential cost issues. Most private schools, for example, have fewer nontraditional students (i.e., commuters, minorities, part-timers, or older students), who are normally associated with lower graduation rates and longer times-to-degree. Moreover, most private schools do not have fee policies that permit extended undergraduate careers. The message here is not to necessarily expect public institutions to produce private school results.
- ***Retention and graduation rates have been consistently lower for underrepresented minorities.*** The data indicate that American Indians exhibit the lowest rate, Hispanics and African Americans share the second lowest rate, and Asians and Whites essentially share the highest observed rate. In California Hispanics have rates that exceed those of African Americans.
- ***Retention and graduation rates have been consistently higher for females.*** The gap is 3–5 percentage points. This general finding is true for all ethnic groups, though the widest intragroup gap is usually between male and female African Americans.
- ***Proportionately more underrepresented (minority) students attend the less selective institutions.*** This finding corresponds to the California experience and for Hispanics probably reflects their generally lower high school attainments.
- ***The more selective institutions generally have higher retention and graduation rates.*** Institutions that enrolled students with SAT scores higher than 1100 points have rates that average 67 percent. Institutions with SAT scores lower than 990 for their new students than have 38 percent rates; and those with scores in the middle show rates of about 50 percent. Thus graduation targets for improvement will vary from site to site; and some schools with high graduation rates may find it more beneficial to focus on access to generate more minority baccalaureates.
- ***Institutions with a higher percentage of part-time undergraduate enrollments have lower retention and graduation rates.*** If campus policy allows for part-time enrollment, then that campus will have significant numbers of students attempting less than 12 units per term. Students who repeatedly enroll as part-timers are associated with dropping out early because their part-time status usually reflects outside commitments to other activities, such as work.

Implicit in all the retention or graduate rates reported by the Consortium is that they are based on tracking over time the behavior of a cohort of incoming freshmen (in most cases, the students began their study in the fall term of the academic year). Those who monitor retention or gradua-

tion must resist the temptation to calculate graduation rates from cross-sectional enrollment data by class level or year of study. Such inferential rates can be severely distorted by changes in the size of the freshman class, the influx of undergraduate transfers, and extended enrollments due to some part-time enrollment behavior.

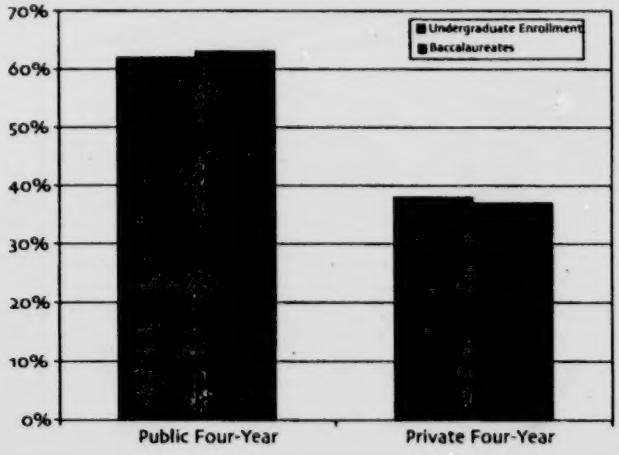
Figure 10. Cross-Sectional Enrollment by Class Level and Enrollment Status



The cross-sectional distribution of enrollment by class level and enrollment status (i.e., new or continuing students) for undergraduates at California comprehensive universities provides a useful example of how contrasting the enrollment size of adjacent class levels (i.e., freshman, sophomore, etc.,) does not yield transition rates from one class to another. To begin with, the freshman class at most, if not all, campuses represents new students plus second-year students who did not complete 30 semester units (or 45 quarter units) in their first year of study. So 'sophomores enrolled in fall 1998' divided by 'freshmen enrolled in fall 1998' (or even fall 1997) do not yield a bona fide first-year retention rate. Second, in this case total counts for juniors represent the entry of new community college transfers plus continuing students. So here juniors exceed sopho-

mores because of the influx of upper-division students from outside the system. Next, the relative size of the senior class in this example, much larger than the junior class, indicates that students take more than one year to complete their fourth-year requirements. Finally, everyone must remember that varying growth rates in the number of new students can distort cross-sectional comparisons. For example, a decline in freshmen can inflate the inferred first to second transition rate and a spurt in freshmen can deflate it.

Figure 11. Correspondence between Hispanic Enrollments and Degrees



Another inferential trap concerns the absolute number of degrees observed. Performance outcomes between institutions or programs should not be based on annual degrees conferred. That one campus, for instance, generates more Hispanic baccalaureates than another does not necessarily mean that the campus has a higher graduation rate than the other. In the main, the higher numbers of Hispanic degrees at some institutions simply reflect higher numbers of Hispanic enrollments than other institutions. Among Hispanic-serving four-year institutions, for example, the correlation between Hispanic enrollment and Hispanic degrees is over 0.9 (see the Appendix C Table). Another interesting enrollment/degree pattern among Hispanic-serving four-year institutions concerns private and public schools. Figure 11, on the surface, suggests that public and private schools generate the same number of Hispanic degrees per Hispanic undergrad-

uate enrollment. The more probable truth is that private schools, collectively, have the higher graduation rates for both native freshmen and community college transfers. What most likely distorts the public/private school comparison is the much greater presence of upper-division transfers from two-year institutions at public four-year institutions.

It probably cannot be said enough that graduation rates generated from longitudinal data should be the primary indicator of how well new practices are doing to promote more baccalaureate attainment. But gradation rates should be complemented by other statistical measures. Gains in degrees conferred can be offset by a decline in numbers of new students. And rising graduation rates that stem from more restrictive admission policies will certainly not satisfy those involved in efforts to expand baccalaureate opportunities to more high school graduates.

V. Improving the Delivery of Early Outreach Services

When campuses learn that very few members of key communities are eligible for entrance, they may turn their attention to early outreach efforts. That is, they may develop strategies that promote eligibility attainment among grade school students. The University of California, for example, has a number of programs that focus on student-centered outreach. The three largest programs are the Early Academic Outreach Program (EAOP), Mathematics, Engineering, Science Achievement (MESA), and the Puente Project. These programs offer advising and academic services that assist K–12 and community college students with attaining the requirement for admission to research universities.

Historical data suggest that one-fourth of all underrepresented minority freshmen at the University of California participated in EAOP programs. Outcome data for MESA indicate that nearly two-thirds of the program participants became eligible and one-fourth of the seniors completing the program enrolled at research universities. In addition, the transfers to the University from MESA's community college program comprised over one-third of all transfers of underrepresented students from the MESA programs.

The Puente Project is a University of California program, administered by individual community colleges, designed to increase the number of Hispanic students transferring from community colleges to baccalaureate institutions. The project trains teams of English teachers and Hispanic counselors to conduct one-year writing, counseling, and mentoring programs on community college campuses.

At the national level the National Science Foundation helps individual states mount activities that, among other things, promote better preparedness among high school students for college instruction. For example, during the 1997–98 school year most state, urban, and rural initiatives identified the district or school as the unit of change for their focused reform efforts. Therefore, these initiatives were designed to impact primary and secondary students through improved standards-based curricula in mathematics and science at the K–12 level; extensive student support programs; summer and academic-year internship and mentoring programs for teachers and students; and after-school enrichment programs. Moreover, mathematics and science teachers were

offered professional development and complementary follow-up activities that supported the implemented standards-based curriculum, and they were provided with expanded programs and services.

All the above activities exemplify how institutions along the higher education pipeline can partner to improve the transition from one set of junctures to another. But these types of activities were not the targets of this study. Instead, the focus was on programs and services directed at students who had been accepted at college and universities. Their description follows.

VI. Identifying At-Risk Students for Early Alert and Intervention

There are several sources for describing the needs of Hispanic college students. The best nationally representative source appears to be the freshmen data from the Higher Education Research Institute at UCLA. When one contrasts Hispanic responses with nonminority responses the extent of the special needs of Hispanics becomes very clear. What is about to be represented are 1999 responses for Hispanic and White students at four-year public institutions where Hispanics were in attendance in more than nominal numbers.

The key at-risk subgroups identified in the survey data are:

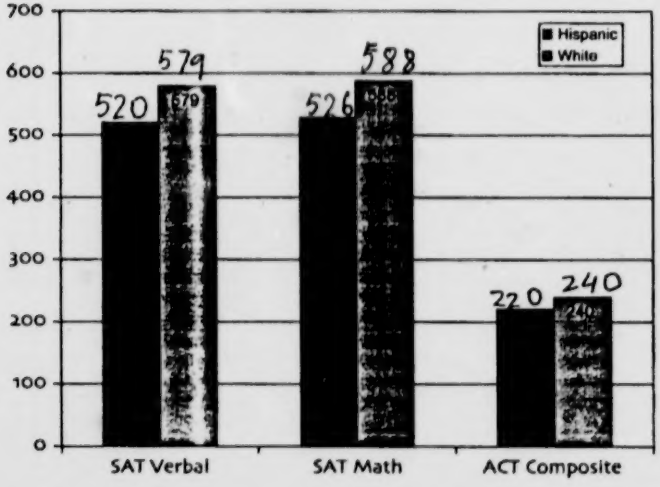
- students with poor high school performance as represented by SAT and ACT scores;
- students academically underprepared for English, reading, and mathematics;
- first-generation college students;
- students with low-income status;
- non-native English speakers;
- undecided students;
- minorities on a majority campus.

Research findings abound that associate higher drop-out rates with the above at-risk subgroups. So campuses should know the size of these subgroups among their new students. And, since most drop-out behavior happens before the second year of study, at-risk students at entry should be prime targets for extra advising and special services.

New Hispanic freshmen are unlikely to post standardized test scores that are on par with comparable scores for White students. Since the earliest graduation rate studies were published, researchers have identified high scores on standardized achievement tests as positive correlates for baccalaureate behaviors. Hispanic students as an aggregate have traditionally scored below the

national average for new college freshmen. At four-year institutions the discrepancy between Hispanic and White freshmen is essentially 60 points for both the SAT verbal and SAT math score. A similar discrepancy is associated with the ACT composite score. On balance, Hispanics scores on standardized test are 9–11 percent less than Whites.

Figure 12. Self-Reported Standardized Test Scores



Source: The Freshman Survey, administered by the Higher Education Research Institute, 1999.

New Hispanic college students are more likely to be underprepared to enroll in a college-level English course during their first term of enrollment. More than one-fourth of Hispanic freshmen were identified as needing remediation in English upon entry into a four-year institution. The comparable figure for White students was just 10 percent.

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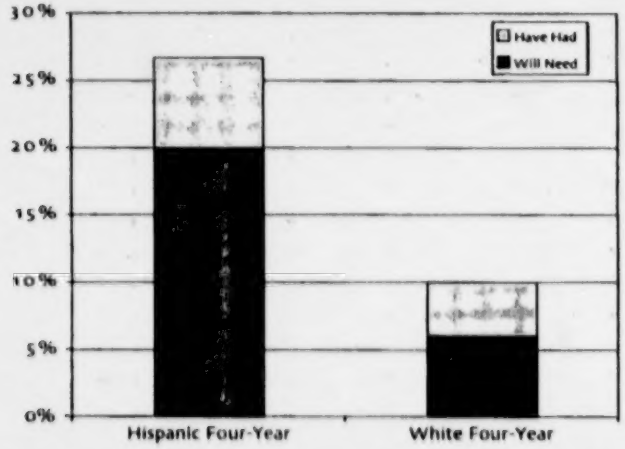
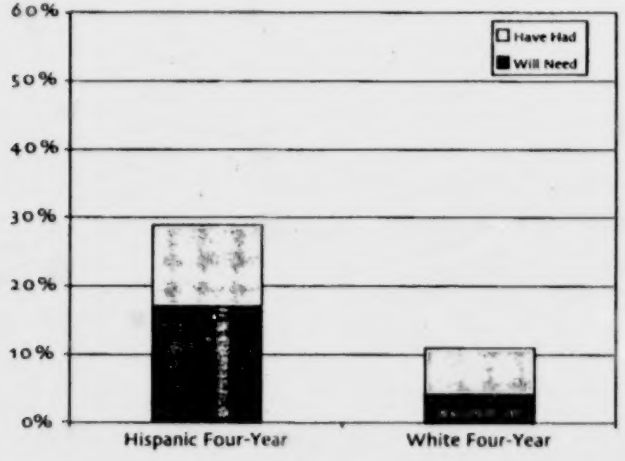
Figure 13. New Freshmen at Four-Year Institutions Who Need English Remediation



Source: The Freshman Survey, administered by the Higher Education Research Institute, 1999.

New Hispanic college students generally lack basic skills in reading. More than one-fourth of Hispanic freshmen were identified as needing remediation in reading upon entry into a four-year institution. The comparable figure for White students was just 5 percent.

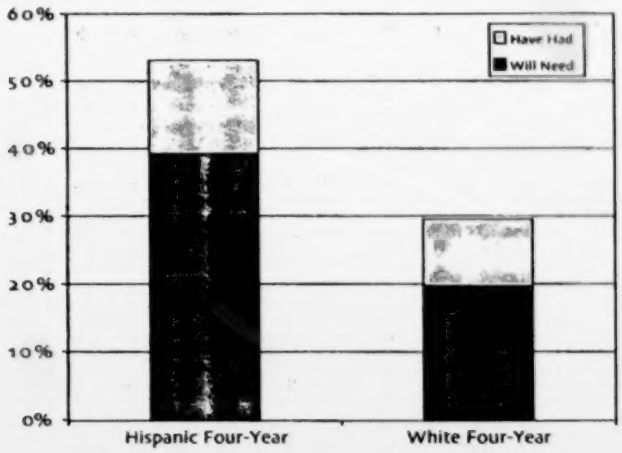
Figure 14. New Freshmen at Four-Year Institutions Who Need Reading Remediation



Source: The Freshman Survey, administered by the Higher Education Research Institute, 1999.

New Hispanic college students generally lack basic skills in mathematics. More than one-half of Hispanic freshmen were identified as needing remediation in mathematics upon entry into a four-year institution. The comparable figure for White students was nearly 30 percent.

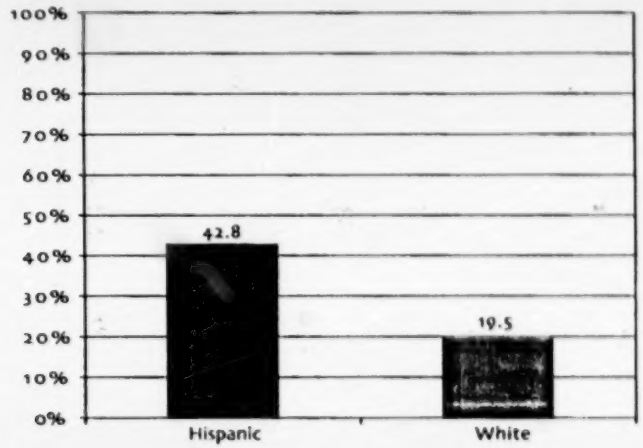
Figure 15. New Freshmen at Four-Year Institutions Who Need Math Remediation



Source: The Freshman Survey, administered by the Higher Education Research Institute, 1999.

New Hispanic college students are generally first-generation college attendees. One positive correlate of baccalaureate attainment is having parents with higher education experience. In short, college students with parents who earned bachelor's degrees have a higher probability of graduating than students whose parents attended college but left without degrees, and students whose parents never attended college have the lowest probability of graduating. At four-year institutions, more than two out of five new Hispanic freshmen are first-generation college goers. The ratio for comparable White students is just one out of five.

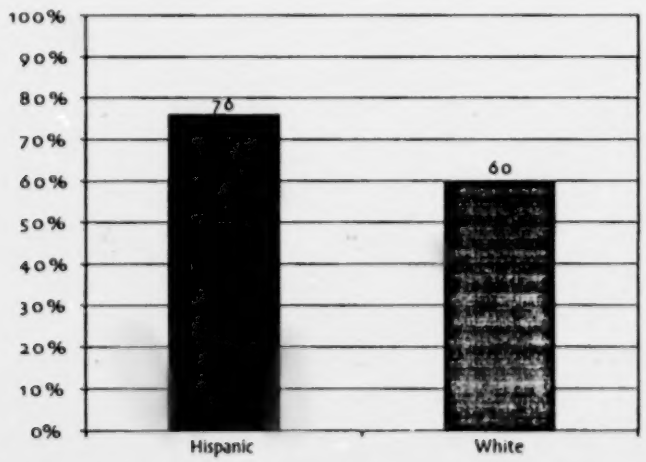
Figure 16. First-Generation College Attendees at Four-Year Institutions



Source: The Freshman Survey, administered by the Higher Education Research Institute, 1999.

Hispanic students are generally low-income students with major concerns about their finances. More than three-quarters of new Hispanic freshmen at four-year institutions have major concerns about how they will pay for their education. The comparable number is 60 percent for White students.

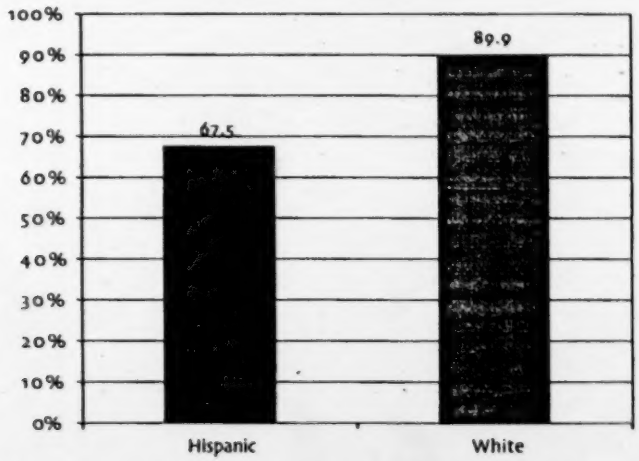
Figure 17. Are Your Finances a Major Concern?



Source: The Freshman Survey, administered by the Higher Education Research Institute, 1999.

New Hispanic students are less likely than White students to be native English speakers. Only two-thirds of new Hispanic students are native English speakers. The comparable figure for White students is nearly 90 percent.

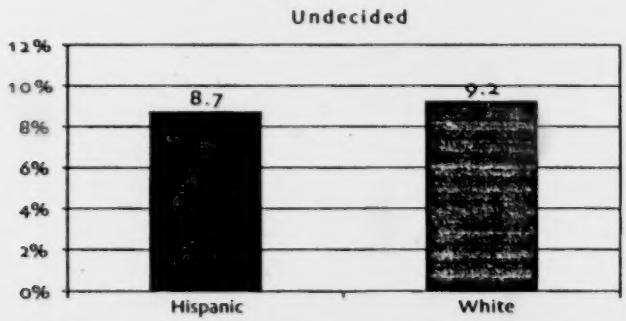
Figure 18. Are You a Native English Speaker?



Source: The Freshman Survey, administered by the Higher Education Research Institute, 1999.

Like other new students, a good number of Hispanics enter college without a definite idea about the area of study that they wish to pursue. On balance, students with undeclared majors at entry have lower graduation rates than students who select a major during their first term.

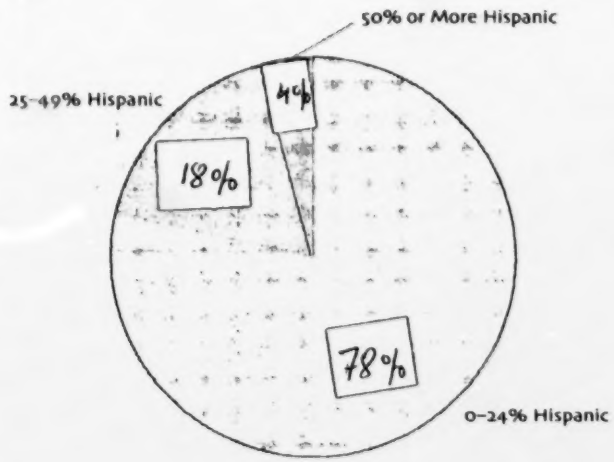
Figure 19. What is Your Area of Study (Major)?



Source: The Freshman Survey, administered by the Higher Education Research Institute, 1999.

Hispanics, for the most part, still represent minority students on majority campuses. The prime exceptions are Hispanics attending institutions in Puerto Rico. The concentration of Hispanic college students in California illustrates their general status of being a numerical minority. In 1997 public two- and four-year institutions numbered 136 campuses; private four-year institutions in the Association of Independent California Colleges and Universities numbered 71 campuses. Of these 207 institutions fully 78 percent had Hispanic concentrations that were less than one-fourth of the total enrollment. Less than one-fourth of the campuses had concentrations between 25 and 49 percent, and only one in 20 campuses had concentrations where Hispanics represented the majority ethnic population.

Figure 20. Hispanic Enrollment Percentage in California Colleges and Universities



Source: California Postsecondary Education Commission, Performance Indicators of California Higher Education, 1999 *(2/2000); (see <www.cpec.ca.gov/SecondPages/Commission Reports.ASP>).*

If Hispanic students on the mainland represent the majority at a higher education institution, it is likely to be a public community college. In California the 106 community colleges post 8 campuses with Hispanic majorities. They post another 25 campuses with Hispanic concentrations between 25 and 49 percent. California State University has 7 campuses with Hispanic concentrations between 25 and 49 percent, and the independents post another 5 schools with Hispanic concentrations between 25 and 49 percent.

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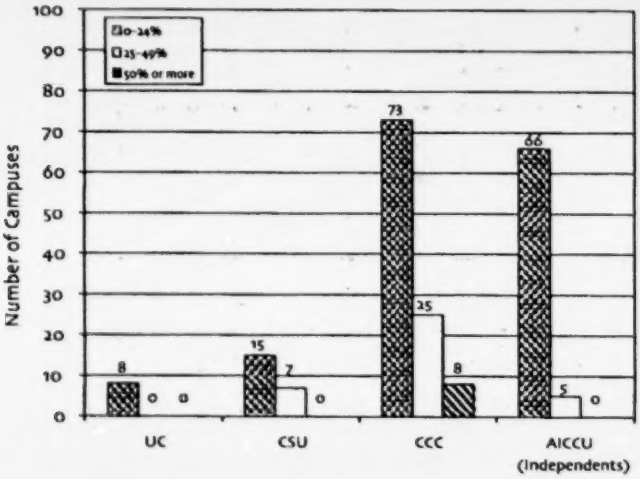
Figure 21. Hispanic Enrollment Percentage in California Colleges and Universities by Segment



Source: California Postsecondary Education Commission, Performance Indicators of California Higher Education, 1999 *(2/2000); (see <www.cpec.ca.gov/SecondPages/Commission Reports.ASP>).*

VII. Retention Services: College and University Programs That Can Promote Greater Baccalaureate Attainment

The federal government sponsors programs to promote baccalaureate attainment among disadvantaged students and minority students, including Hispanics. Reviewing these programs gives some context for the types of student services colleges and universities have devised to increase access and retention for target populations. Key elements of each federal program are generic lists of approved practices, establishment of target groups, methods for identifying participants, and explicit goal statements about the intent to increase graduation rates.

Perhaps the oldest existing set of programs is TRIO. Within TRIO, the Student Support Services (SSS) program is illustrative of the kind of assistance the federal government advocates for undergraduates pursuing baccalaureates. SSS is designed to provide opportunities for academic development, assist students with basic college requirements, and motivate students towards the successful completion of their postsecondary education. Services provided by the SSS include:

- instruction in basic study skills;
- tutorial services;
- academic, financial, or personal counseling ;
- assistance in securing admission and financial aid for enrollment in four-year institutions;
- assistance in securing admission and financial aid for enrollment in graduate and professional programs;
- information about career options;
- mentoring;
- special services for students with limited English proficiency.

The targets for the services are potential first-generation college students, low-income students, and students with disabilities. Two-thirds of the participants in any SSS project must be either dis-

abled or potential first-generation college students from low-income families. One-third of the disabled participants must also have low-income status. The term 'first-generation college students' denotes students whose parents have no college experience, and the term 'low-income students' means individuals whose family's taxable income for the preceding year did not exceed 150 percent of the poverty-level amount. Additionally, some type of assessment for academic need determines participants in SSS projects.

Financial assistance is at the foundation of the SSS program. Participating institutions must ensure that SSS participants will be offered financial aid packages sufficient to meet their full financial needs.

The Minority Science and Engineering Improvement Program (MSEIP) is illustrative of efforts that focus on baccalaureate attainment in specific areas of study. MSEIP offers institutional project grants to support the implementation of a comprehensive science improvement plan, which may include any combination of activities for improving the preparation of minority students, particularly minority women, for careers in science and/or engineering.

The Ronald E. McNair Post-Baccalaureate Achievement Program is illustrative of the concern for the transition of undergraduates to postgraduate study. The goal of McNair is to increase graduate degree attainment of students from underrepresented segments of society. The program awards grants to institutions of higher education for projects designed to prepare participants for doctoral studies through involvement in research and other scholarly activities. McNair participants are from disadvantaged backgrounds and have demonstrated strong academic potential. Institutions work closely with these participants through their undergraduate requirements, encourage their entrance into graduate programs, and track their progress to successful completion of advanced degrees. Services provided by the program include:

- research opportunities for participants who have completed their sophomore year of college;
- mentoring;
- seminars and other scholarly activities designed to prepare students for doctoral studies;
- summer internships;

- tutoring;
- academic counseling;
- assistance in obtaining student financial aid;
- assistance in securing admission and financial aid for enrollment in graduate programs.

Just recently the federal initiative for institutions that focus on serving Hispanic and other low-income students was moved from Title III to Title V. The initiative was labeled the Developing Hispanic-Serving Institutions Program. Grants are awarded to assist eligible Hispanic-serving institutions of higher education to expand their capacity to serve Hispanic and low-income students. Funds may be used for activities such as scientific or laboratory equipment for educational purposes, the renovation of instructional facilities, faculty development, funds and administrative management, development and improvement of academic programs, acquisition of equipment to strengthen funds management and academic program, joint use of facilities. Student support services include academic tutoring and counseling programs.

Regardless of whether campuses are participating in any of these federal government programs, they already provide many of the functions called for by such entities as TRIO. The most prevalent programs or services we encountered were:

- financial aid;
- academic advising;
- summer programs;
- orientation programs;
- orientation classes;
- precollege coursework;
- supplemental instruction;
- learning centers;
- diversity programs.

The first two entries below, financial aid and academic advising, had universal presence on

college and university campuses in our pool. The other entries had varied status in terms of their presence, size, and maturity.

These support services can be present on campuses in a myriad of ways. They can be housed on campus under the rubric of academic affairs or student affairs. They can be organized with formal links between programs or as separate operations. They can involve partnerships with academic departments or operate independently. They can be associated with campus-wide goals or they can simply reflect traditional responses to specific problems. They can be funded with regular campus funds or with extramural monies. New financial resources can be allocated based on need or they can simply represent *pro rata* increases.

How effective these programs are also varies across campuses. Naturally, adequate funding and able staff are key components of success. Moreover, most observers agree that effective programs are not administrative add-ons but are part of a systemic effort to improve student outcomes. Thus, effective programs are associated with campus-wide *consensus*, *collaboration*, and *commitment*.

What follows is a brief recounting of how these program are administered on campuses, who the target students are, what is the nature of the participation, and what are the primary goals of each program. The descriptions were constructed from visits to colleges and universities in the southwest and northeast. Faculty and staff were the principal informants about the services, though some students responded about their experiences as program participants.

1. FINANCIAL AID

Description. Analyses of national data sets confirm the fact that financial assistance to low-income students is associated with higher levels of undergraduate retention. On balance, students with financial need who receive aid are able to graduate at rates very similar to those of students who do not require financial assistance. The three basic ways aid is doled out is by scholarships, student loans, and employment. Scholarships (or grants) can be merit based or need based. Student loans are need based and, unlike scholarships, must be repaid to the lenders. Student employment usually requires 20 hours or less of work per week at a campus site. Financial aid officers must do

more than just allocate aid dollars. For example, they should make prospective students fully aware of how financial need is determined, how to apply for financial aid, and how financial aid packages are awarded. Financial aid administrators should inform all financial aid recipients of the terms and conditions of their awards. Plus, financial aid applicants who are not eligible or financial aid recipients who did not have all their unmet need funded should be fully informed by the financial aid office about their status and referred to other sources of monetary aid.

Target population. All undergraduates with unmet financial need (i.e., needs minus resources is greater than zero).

Attendance. Participation in federal, state, or local financial aid programs is voluntary. Students must initiate contact by completing applications. Persons receiving aid must meet eligibility criteria. The pool of available dollars can affect the size of an award.

Main objective. To eliminate financial needs as a barrier to degree completion for undergraduates.

Focus-group responses. At the four-year public institutions many of the students are uninformed about the total cost of their education. They understand the tuition and fees they must pay, but they do not realize that the State subsidizes part of the total cost for attendance. Thus they do not comprehend the full price tag for a year's worth of enrollment or what proportion of that price tag they are responsible for paying. Moreover, most students are unaware of comparable costs for other institutions, especially public institutions outside their home state. As a result many students have little, if any, background to assess the level of tuition and fees they are obliged to pay. Regardless, most students believe the yearly amount of money they must pay their institution for enrollment is too high.

Staff see financial aid as a vital component of student services on campus. At the four-year public institutions, between 50 and 70 percent of the Hispanic students receive aid. The higher percentages of utilization seem to occur at the higher-cost, research institutions. Most of the staff at all institutions think that Hispanic students tend to underenroll in financial aid programs. The perceived deterrent is the nature of most financial aid packages: the majority of funds represent loans.

Both staff and students believe that financial aid programs are underfunded, even though they

might also be underutilized. Each group cites many examples of students receiving levels of aid that are well below the projected financial need. Thus, working during the school year is almost inevitable, regardless of whether a student receives aid or not. Furthermore, the probability of eligible students receiving financial aid appears to decline as students move from freshman to senior class level.

Many new students on financial aid have work-study in their first year; and in general, work-study is available to more freshmen than seniors. The majority of the students express preferences for on-campus vs. off-campus jobs. At some campuses on-campus jobs are seen as promoting increased student retention. These campuses tend to be community colleges and comprehensive schools. Some students and staff at these institutions comment that on-campus jobs can help students integrate into the larger campus community, and staff may become resources for working students.

Most students who work, on campus or not, say that the job interferes with making out a full-time schedule of courses and their available study time. Students at higher-retention research institutions definitely believe that work detracts from overall academic performance.

Students who attend community colleges are less likely than their four-year counterparts to apply for or receive financial aid, partly because of the lower tuition and fees associated with community college attendance. The general inexperience of community college students with financial aid procedures can be a problem when it comes time for students to transfer. Transfers are often unaware of financial aid deadlines at four-year schools and the time it takes to complete and file applications.

The timeliness of financial awards is also an issue. Students related experiences of receiving financial awards near the end of terms instead of the beginning and in some cases after terms were over instead of before they began. The perception is that when financial awards are issued after students have completed significant parts of the academic term, then the financial awards are rewards rather than aids to facilitate greater retention or better academic performance.

In the area of merit-based funding there is concern that the criteria for eligibility might sometimes be too high. If the goal of the merit-based award is to substantially increase the retention rate of well-defined student populations with historically low retention rates, then the

criteria for eligibility should not be so selective that they include very few of the target groups.

Recommendations:

- Brief prospective students and their parents about the cost and financing of an education and the economic benefits associated with baccalaureate attainment; here staff should also focus some attention on early outreach efforts to middle and high school students.
- Support efforts to increase the pool of dollars available for financial aid, especially monies earmarked for upper-division students.
- Establish more merit-based funding to supplement financial aid for need-based recipients.
- Work harder to deliver aid packages, including scholarships, on a more timely basis.
- The criteria for eligibility should be in line with capturing the optimum number of target students.

2. ACADEMIC ADVISING

Description. Comprehensive academic advising programs often identify five steps to the advising process: 1) discovery of life goals, 2) investigation of career goals, 3) identification of a program of study, 4) selection of classes, 5) scheduling of courses. Thus the focus of academic advising is the development of a detailed plan for completing the degree requirement of a chosen major. Initial advising is often focused on coming up with a short-term academic plan for completing general education requirements, declaring a major, speculating about a long-term academic plan, and identifying any special needs. Later advising can include monitoring academic progress, identifying relevant internships, consideration of graduate school, and referrals to other units on campus (e.g., career planning and job placement). Service providers are varied. They may include faculty members, professional advisors, peers, and paraprofessionals. Advising may be dispersed across departments or centralized in one office. In practice it appears that most campuses use a combination of delivery services. Centralized units commonly disseminate information about the lower-division curriculum and generic information about majors. Departments usually disseminate precise information about the baccalaureate requirements for majors, minors, and concentrations.

Target population. All undergraduate students.

Attendance. For some activities, like course selection approval, meeting with an advisor may be mandatory.

Main objective. The creation of an individually appropriate educational and career plan.

Focus-group responses. Seniors state that departmental advising is less than satisfactory. Nor do they have any good opinions about general advising, especially for those who need to pick a major or change a major. Many students complained about poor advising they received from peers who were employed as part-timers. Students in their freshman year could identify fellow students who either were not committed to working academically at the college level or were too immature to be residential students. These students appear to have avoided advising or counseling. Students often say they have to change majors because precollege advising was not complete or correct. The number of prerequisites that students encounter confounds them. Staff are aware that students are hostile about any class whose role in the curriculum they do not understand.

Recommendations:

- Advising staff needs to be stable so that knowledge is more likely to be consistent and up to date.
- Staff, especially part-timers, need to be trained on how to make referrals when situations exceed their expertise.
- Faculty need more training on advising.

3. SUMMER PROGRAM

Description. Prior to fall enrollment new admissions are invited on campus to attend noncredit activities offered during the summer. The metaphor for the program is usually a 'bridge' that links high school to college. So activities are geared to help new enrollees make the transition from successful high school students to successful undergraduates. The program normally consist of the following components:

- Orientation: familiarizing students with college policies, offices, departments, and services; plus letting students meet selected faculty and staff.
- Placement exams: students prepare for college placement tests, such as English and

math; in some cases they take the exam at the end of the summer session.

- Minicourses: taught by regular faculty, these abbreviated classes give students a firsthand preview of the academic expectations for college credit courses.
- Cultural enrichment: presentations that give students an appreciation for the cultural diversity of the student population.
- Study hall: this time allotment allows students to hone their individual study habits and to form study groups.
- Preregistration advising: information on how to manage the process of enrolling in individual classes.
- Recreation: activities that further help students to establish peer relationships.

Target population. The primary targets are usually new freshmen who are first-generation college-goers; students who entered an institution as exception admits (i.e., they did not possess all the prerequisites for regular admission); students from low-income backgrounds; or students from ethnic minority groups that have been traditionally underrepresented on campus. Secondary targets are students with certain academic majors (e.g., science, math, engineering, or technology). Other targets may be undergraduate transfers. Parents also may be invited.

Attendance. Participation in a summer program is voluntary for many of the invitees. Mandatory attendance is normally restricted to exception admits. The duration of the program varies from 2 to 6 weeks. Most of the time students live on campus during their summer participation.

Main objective. The intent is to help students survive their first year of college attendance and reenroll for a second year of study by easing their transition from grade-school work to college coursework, making them aware of campus resources, and providing them with personal contacts.

Focus-group responses. There was almost universal praise across all the institutions from freshmen for the summer bridge programs they attended before fall classes began. Many recent attendees were first-generation college students with little knowledge about college culture in or outside the classroom. After getting one term under their belts, most of them talked about social adjustments as more problematic than academic adjustments. So, in retrospect, many of the summer bridge participants were very appreciative of the program's social component (i.e., oppor-

tunities to make friends) as well as the academic feedback they got.

Students who were able to prepare for college placement tests were very pleased with the experience. The summer bridge experience did not ameliorate all their shortcomings regarding college readiness. Even though they received special test preparation, many of the summer students still scored below cut-off points and had to attend precollegiate courses. However, they still felt good about being assessed early and set on the fast track for remediation. Students also were very positive about the opportunity to earn credit units during the summer program.

Though staff were equally positive about the benefits students derived from the summer bridge experience, they reported several problem areas. First, programs were often underfunded and, in some cases, restricted to a very small number of participants. Second, faculty involvement was not always present at levels that satisfied the goals of the program administrators. Lastly, many of the programs did not permit much participation for incoming undergraduate transfers.

Recommendations:

- Link summer bridge funds to the existing demand among new students, freshman and transfers, for an extended preenrollment experience.
- Facilitate more faculty involvement in summer bridge academic and social components.
- Investigate more opportunities for students to earn credit hours during the summer, though the goal should not exceed 3 semester units or 4 quarter units.
- Summer programs should be at 4 to 6 weeks in duration.

4. ORIENTATION PROGRAM

Description. In the week just prior to the commencement of fall classes or during the first week of fall classes, incoming students are invited to attend orientation sessions. Via a series of presenters, students are given an overview of the campus environment and instructions on how to explore that environment. The content also may include information about student needs, student performance, financial-aid opportunities, work prospects, and career counseling.

Target population. The primary target is all new first-time freshmen. A secondary target may be undergraduate transfer students from local community colleges. Parents may also be invited.

Attendance. Participation is usually mandatory. The duration of the program varies from one day to one week.

Main objective. The aim is to start students on the road to developing independence for their actions on campus.

Focus-group responses. Most orientation programs were less than 3 days in duration, many were just about 1.5 days in duration, while some were a week long. The shorter versions were often residential. The most frequent comment from students was that too much material is presented in too short a time. Many students search out answers to small sets of questions, and when they receive the answers they want, their attention wanes. Staff observes that many students are somewhat reluctant participants.

One student complaint was the use of student workers to convey the orientation information. These individuals were not perceived as experts, and later in the academic term participating students determined that the student workers did not always give correct information.

Students are often confused about the real purpose of the orientation program. Many believe that participation will assist them with the registration process. Generally this is not a goal of the orientation program, thus students frequently leave dissatisfied with the experience. Others believe the program will facilitate test-taking for placement exams. Again dissatisfaction occurs when the students' expectations are not met. For some students the experience is made palatable if they are given an opportunity to make friends.

Recommendations:

- A clear set of goals and objectives regarding the orientation should be presented before students attend assigned sessions.
- If there is a tension between material to cover and time available, presentations should be reduced or more time should be allocated to reduce instances of 'information overload'.
- Staff should obtain regular feedback from students about the orientation program experience.
- There should be an evaluation of the orientation experience.
- Staff should investigate the extent to which the orientation program can be a vehicle for making the registration process for new students a more manageable experience.

5. ORIENTATION CLASS

Description. This is a credit-bearing activity that is administered throughout the fall term. A faculty member has responsibility for the course; however, the format may still include a series of presenters representing faculty and staff from around the campus. Some aspects of the orientation class correspond to the content of the 1–5 day orientation program. Again, students are given an overview of the campus environment and instructions on how to explore that environment, and the content may also include information about student needs, student performance, financial aid opportunities, work prospects, and career counseling. Unlike the orientation program, the extended schedule promotes more in-depth discussion of topics, avoids information overload, and allows for skill development in a structured environment with peer support. Activities to clarify academic expectations and promote good student habits are usually more developed in the orientation class versus the orientation program. A variant of the orientation class also has a more developed academic/advising component. Here students are given a chance to explore the general education requirements of their campus before declaring an academic major.

Target population. The primary target is all new first-time freshmen.

Attendance. Participation is usually mandatory. The duration of the program varies from one term to one year. The shorter class is commonly labeled the freshman seminar and the longer class is frequently labeled the freshman year of study.

Main objective. The purpose is to help students survive their first year of college attendance and reenroll for a second year of study by promoting behavior whereby students can resolve uncertainties or problems via campus resources.

Focus-group responses. Instances of the 'freshman seminar' were rare, and where it was in operation, it was a relatively new venture with little history on outcomes. Students' comments about the orientation class varied. Often it seemed that satisfaction was based on faculty performance rather than the content of the class. Students complained that some academic year activities were duplicates of summer activities.

Recommendations:

- Classes should be monitored to ensure that core components of the class are being administered to students.

- Student outcome data should be collected and assessed as part of the overall evaluation of the program.

6. PRECOLLEGE COURSEWORK

Description. A portion of an incoming freshman class may be deemed by an institution to be unready to engage in all aspects of the lower-division curriculum. Historically, for example, significant numbers of incoming students have been denied immediate entry into college-level English classes but instead have been directed to precollege English classes. The precollege classes are designed to prepare the students for the demands of the college-level courses. These 'remedial' classes now include precollege instruction in math and selected sciences. A few campuses also include remedial instruction in reading. Class size is often lower than average. Successful completion of the course is usually the gateway to enrollment in the college-level course. Precollege units earned never satisfy any degree requirements, but they are applied to the assessment of students' full-time enrollment status. Faculty responsibility for precollege classes varies. Some institutions employ regular faculty whereas others employ temporary faculty. Some institutions require completion of remedial instruction but do not offer such classes. In such cases the requirement is commonly completed at a local community college.

Target population. The target group is academically underprepared undergraduates who are new to a campus. Test scores determine underpreparedness among students. In some cases cut-off test scores are established for standardized tests that are application requirements (e.g., SAT verbal or SAT math); in others they are established for locally designed placement tests. Most often assessment of new undergraduates is made prior to the students' first term.

Attendance. Participation is mandatory for those who score below the established cut-off scores. The duration of precollege class participation is normally one term. Students who score very low on a placement test may be assigned a sequence of more than one remedial course.

Main objective. The goal is to prepare students for college-level work so they can successfully complete their general education requirements as early in their academic careers as possible.

Focus-group responses. Many four-year schools use ACT/SAT for placement in remedial math or English. Some schools use campus-based tests which may have diagnostic properties that are absent from ACT or SAT scores. Usually students can test out anytime, especially from

precollege math courses. Regardless of the site, at least 40 percent of new freshmen seem to need remediation in math, English, or reading.

Students relate the most dissatisfaction with the precollege math experience. First, students have an almost universal perception that mathematics classes are used to weed out undergraduates. Next, staff are dissatisfied because the campus math department is not always directly involved in any student services to facilitate precollege math instruction. Community college instructors often conduct the classes. In some cases students must obtain precollege math instruction in community college classes.

Students are quick to note that math instructors often are not native English speakers and relate many communication problems for material that they already find difficult. They also question the level of articulation between precollege and general education courses.

Students enrolled in precollege math classes are not homogeneous. For instance, students who did not take math in their senior year of high school appear to have more problems than students who did. The precollege curriculum needs to address these differences. Students don't like to be placed in classes where the material is too far above or below their current level of readiness.

At community colleges precollege courses are an integral part of the general curriculum. Placement and availability are not problem areas. At issue for some campuses is the number of precollege courses some students must take before they can enroll in a general education college course. Too numerous a set of precollege courses could reflect poor articulation between two-year and four-year institutions, and proceeding through numerous precollege courses could severely delay advancement from the lower-division to the upper-division curriculum.

Recommendations:

- Students should be tested and enrolled into precollege courses as soon as possible.
- Precollege courses should be delivered on campus by affiliated faculty.
- Precollege courses should be devised to prepare students for college-level instruction in general education math and English courses; they should not be devised to meet alternative standards.
- When necessary, precollege courses should be tiered to accommodate different levels of readiness.

- The number of precollege courses should be articulated with the demands of corresponding general education courses.

7. SUPPLEMENTAL INSTRUCTION

Description. Students must successfully complete a set of lower-division courses before they can advance to the upper-division requirements of their declared majors. In many cases satisfactory completion of one course is key to academic advancement. Among engineering majors, for example, calculus serves as a 'gateway' course to an engineering baccalaureate. To promote higher rates of passage through these gateway courses, some campuses have developed supplementary instructional activities. These activities take place outside the classroom. The principal activity is usually a workshop-like session; that is, students engage in hands-on problem solving. The topic for each session corresponds to the current topic being covered in the class. In most instances students are presented with additional material about the subject at hand; the workshops are not simply study periods where homework assignments are completed. Students who have already passed the course in question facilitate the sessions. The workshop facilitators are trained and supervised by faculty members.

Target population. The target group is composed of either students enrolled in gateway courses that have high attrition rates, students from groups that are traditionally underrepresented in certain majors, or both.

Attendance. Participation is usually voluntary, but students register for classes and the workshops at the same time, so workshop attendance is not impeded by class schedule conflicts.

Main objective. The goal is to increase the completion rate for gateway courses and improve the quality of student performance in those classes; this results in more students advancing to upper-division status in high attrition majors.

Focus Group Responses. In general, students stated that supplemental math instruction helped them study in groups and helped them pass precalculus requirements. The most likely recipients of supplementary math instruction are engineering students. Furthermore, engineering students appear to have a well-developed set of departmental supports, including tutoring. Many of the services are externally funded. In contrast to engineering, chemistry and physics are areas with apparently little outside departmental assistance for supplementary instruction.

Recommendations:

- Expansion of supplementary instruction to all science, math, engineering, and technology courses that are gateways to higher level instruction.
- Exploration of how supplementary instruction can be applied to other areas of the undergraduate curriculum.
- Exploration on how to institutionalize supplementary instruction on campus.

8. LEARNING CENTERS

Description. Most campuses provide students with a central locale where they can find academic assistance for a variety of subjects. Whether they are called learning resource centers or learning assistance centers, these units help students with their academic difficulties by providing them with access to materials and tutors. Usually these units provide a wide range of services. At one end of the service spectrum learning centers provide students with self-instructional material, and at the other end they provide structured tutorial sessions designed for specific courses. In between they offer individual tutorial services for walk-ins with particular problems. Coverage is frequently just for the lower-division curriculum, and the instructional strategy is normally to aid students with comprehending their homework assignments. The centers often organize special workshops on time management, effective note taking, test preparation, and written and oral communication and critical thinking skills.

Target population. The target group is composed of either students who are aware that they need academic assistance and are self-motivated to seek aid, students who are referred to the unit because of poor attendance or substandard performance, or students who are enrolled in general education classes with high attrition rates.

Attendance. Participation is usually voluntary.

Main objective. The goal is to enhance students' classroom performance by providing an environment for them to engage and master their homework assignments.

Focus-group responses. Many of the freshmen reported that their first-term GPA in college was lower than their high school GPA. Poor study habits and ill-informed expectations were cited most often. Seniors stated that as freshman they especially needed assistance with developing better study habits. And both freshmen and seniors reported that they had little high school

experience of studying class assignments cooperatively. So the demand for skills instruction is high. However, neither group reported high rates of participation with learning centers to acquire these skills.

Some of the more senior staff at learning resource centers see critical thinking as a quality absent among many incoming students. In general they believe that students are not well prepared to look for causal relationships. Very few of the learning resource centers appear to have components that focus on cultivating critical thinking.

Efficient learning centers have close relationships with professors who teach gateway courses, such as the general education classes for math, English, or science. Thus, the learning resource staff are well versed on the content and objectives of the course and can offer expert tutoring on the assignments. Staff members at learning resource centers also try to target gateway courses; that is they try to provide assistance to students who are enrolled in courses with high failure rates. Conversations with staff, however, did not yield any indications of how effective learning resource centers were. Few centers could accurately recount how many students they served or the trends in academic performance or attrition rates in gateway courses.

Workstations are important components of learning resource centers. So, like most other parts of the campus, staff are concerned with providing enough workstations to meet student demand and providing students with access to up-to-date-equipment.

Recommendations:

- Learning centers need to define whether their clients are primarily unrelated individuals, groups of students who share common curricular needs, or both populations; then they should proceed to orient their services accordingly.
- Learning centers that choose to focus on groups of students with common academic goals need to work cooperatively with the departments and programs so that their services correspond with actual need.
- Learning centers that choose to focus on individual students need to pursue alternative methods for self-instruction.
- Learning centers need to better monitor the flow of students—their 'clients'—and the pattern of usage by individual students.

9. DIVERSITY PROGRAMS

Description. These programs often offer multiple services to ethnic minority students, and these services can mirror the student services offered by other parts of the university. In some cases, then, diversity programs are an alternative source for receiving basic assistance. One distinguishing feature of such programs is the staffing. Most of the employees are usually themselves members of the same underrepresented groups they aim to serve. Another distinguishing feature of these programs is the attention paid to cultural issues. First, staff members try to provide students with the cultural ambiance associated with their corresponding ethnic backgrounds and, second, the programs often support cultural programming on campus as well as culturally based student organizations. On campuses where student services are centralized by function (e.g., advising, tutoring, and learning assistance), diversity programs are more focused on cultural issues or special projects, such as promoting faculty mentors or internships.

Target population. The targets are undergraduate students from historically underrepresented ethnic groups, such as Hispanics, African Americans, American Indians, and Southeast Asians.

Attendance. For most activities attendance is voluntary; some activities may be contractual.

Main objective. The creation of a central location on campus that is sensitive to the curricular and noncurricular needs of ethnic minority students.

Focus-group responses. Most freshmen state they are not sensitive about their ethnic minority status. They do not feel compelled to either or assert or defend their ethnicity. So many new students have little voluntary contact with diversity programs. This is not entirely the case for older students. Senior respondents, said they did experience some ethnic-based conflicts on campus. They cited tensions in ethnic study classes and cocurricular activities that occur outside the classroom. As to the latter, many seniors observed quite overt ethnic tensions between student organizations (e.g. MECHA, a Mexican American organization, vs. national fraternities or sports-related student groups). These older students often look to diversity programs for leadership, moral support, and concrete assistance.

Some students with nonstandard English accents feel their speech elicits prejudice and discrimination from others. The same is true for Hispanic students who frequently use the vernacular

of their neighborhoods. Both groups feel pressured to change their speech behavior. Diversity programs frequently offer these groups safe havens to use Spanish or nonstandard English.

Hispanic students who were transfers from institutions with very small numbers of minority students held a special appreciation for diversity programs. They reported that their first campuses of attendance were either hostile to minorities or did not accommodate minorities by helping them to adjust to new environments.

On campuses that have large proportions of minority students with targeted special services, minority students often feel some compassion for white students who do not have the same support opportunities. It very well may be that majority students feel some resentment about the same situation and project culpability onto minority students.

Being the target for special services appears to be a double-edged sword. Some minority students complained about receiving assistance from ethnic-based providers on campus. The resentment stemmed from their perception that they were being preidentified as being at-risk to drop out without any direct evidence. Students who felt that their academic needs were not properly assessed were especially angry about being targeted or arbitrarily assigned to a service program. Thus some minority students can have very negative perceptions of diversity programs.

Sadly, a few students at several campuses recounted instances of perceived ethnic intolerance on the part of faculty. Many times the unfriendly exchanges took place between native-born Hispanic students and foreign-born faculty. The students experienced two primary sources of discord. The harsher one is when faculty members communicate to their students that said students are not worthy of college student status. The other is when faculty members decline to assist students in improving their academic performance. In the first case the students feel that they have been stereotyped as 'affirmative action' admits and subjected to unfair ridicule; in the second case they feel they are rejected by faculty as candidates for mentoring, something Hispanics feel is available to most majority students. Because of such perceived slights, some minority students become advocates for strong diversity programs on campus, while others become very antagonistic to certain segments of the campus community. In the main, these angry students believe many faculty members are hostile to minority opinions in class, and they firmly believe that too many faculty

members question the validity of ethnic admissions.

Students, both freshmen and seniors, want more ethnic role models. At every campus students felt the number of minority faculty available to them was not sufficient to meet the demand for their services. To some extent the same is true for staff. So some students view larger diversity programs as a way to increase the pool of ethnic role models on campus.

Staff observations about diversity programs are usually centered on issues of effectiveness and stability. Outside of California, many staff members felt their diversity programs or ethnic services were underdeveloped. At some campuses the perception was that the number of students served was too small compared to the number of students with real needs. At other campuses the perception was that the list of services provided did not represent a full-service program. Here, for example, many staff members reported that their programs did not have adequate preenrollment or summer activities. Many also cited a general absence of mentoring activities of any kind, an activity most staff members viewed as an essential ingredient for promoting higher graduation rates among minority students. The heartfelt opinion of many is that diversity programs are underfunded from the beginning and things get worse over time.

A frequent source of irritation for staff in diversity programs concerns the issue of accountability. Many feel that they are held accountable for students' outcomes that are not part of their portfolio of campus responsibilities or for which other units on campus should have the primary share of responsibility. In short, they feel that are held accountable for things beyond their direct control. In most cases, resource staff members think academic units should be held more accountable for many of the outcomes they are assigned.

Another source of tension between diversity program staff and other units on campus is the primary goal regarding student diversity. Should diversity programs, for example, offer programs that help everyone adapt to the core culture of campus? Or should they promote a greater expression of minority cultures on campus? Many minority staff members believe, to their chagrin, that campus diversity programs work to 'denature' minority students by emphasizing majority values.

Finally, there appears to be a very uneven dissemination of information across the campus population of students, faculty, and staff about the status and performances of students in general

and minority students in particular. Every campus, for instance, generates facts about applications, admissions, enrollments, majors, and degrees conferred; but large chunks of each subpopulation are unaware of trends in baccalaureate attainment at their institution. Moreover, data that have public information status (such as graduation rates by gender and ethnicity) are not always readily available for interested parties on or off campus.

Recommendations:

- Diversity programs should try to regularly assess students needs, services rendered, and the extent to which they can meet student demand; in other words, programs should strive to understand their capacity as well as the performance of their students.
- University personnel need to use more objective tools to identify students who should participate in the program and take more time to explain their selection decisions to their clients.
- All concerned should try to link funding for diversity programs to the head counts of program participants, and they should strive to incorporate cost-of-living adjustments into the funding process.
- Diversity programs need to find a balance between helping students adjust to change and promoting ethnic expression and cross-cultural understanding.
- Each campus should routinely assess the data needs and how well it is disseminating information to all interested parties.

10. OTHER PROBLEMS

Following is a list of common complaints expressed by students, faculty, and staff that do not quite fit into any of the above discussions about student service programs. All, of course, are perceptions, but they are worth investigating given the frequency with which they are uttered. There are placed in a catchall category because they do not necessarily represent realms associated with any one common unit on a campus.

- Many believe there is poor articulation between community colleges course and the curriculum of many four-year universities.
- Very few services appear to be targeted at new students, especially transfers.
- There is little assistance for undeclared students.

- Faculty members often appear intimidating in the classroom to lower-division students.
- Faculty members sometimes appear standoffish during office hours.
- Students' first two years are very difficult, and there is very little counseling on how to get services.
- Chemistry and physics are service departments for biology and engineering; that is, they do not produce many chemistry and physic majors; instead they provide many required courses to students from other majors. Outside faculty report that the two service departments often act in ways that are problematic to biology and engineering students. A major complaint is that chemistry and physics faculty are not always attentive to courses with high failure rates.
- Students are critical of teachers who are unable to communicate beyond scripted class notes.

VIII. Connecting Students to Campus Resources and Activities

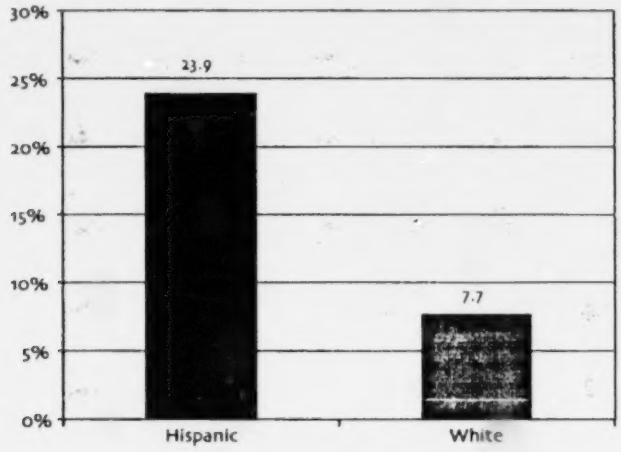
As anyone who has monitored the status of college freshmen knows, many of their situations change over time. They change majors, the number of units they attempt from term to term, their work status, and other statuses that may affect their chances of earning a baccalaureate. One summation of the additional risks that students assume can be derived from the responses of seniors at four-year schools. Their recollections can reveal to what extent they survived academically despite having engaged in risk behavior. For example, a constant finding is that most Hispanic students work while attending college, and more times than not the employment occurs at an off-campus site. Further, their recollections can suggest to what extent students survived because they received additional services from the university. Here, for example, seniors reporting that they participated in precollege classes as undergraduates might suggest the positive effects of early intervention on later persistence to degree.

The Higher Education Research Institute at UCLA is also our source for senior responses about their experience as undergraduates. Unlike the freshmen data, the senior data are not based on enough campus participants to yield a nationally representative set of results. The survey outcomes are reported here to give some idea of what the profile of prospective graduates is and to get one view of how the senior profile differs from or mirrors the freshman profile.

Seniors, of course, represent survivors, so risk behaviors or extra services received probably occurred at higher rates among students who dropped out of colleges or universities before attaining senior status.

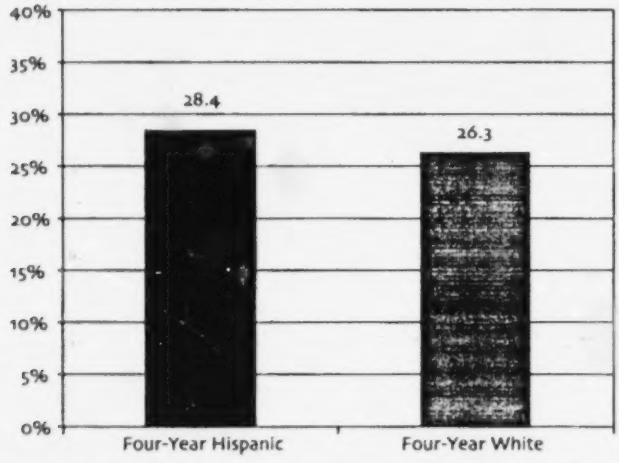
The source for figures 22–30 is The Senior Survey, administered by the Higher Education Research Institute, 1999.

Figure 22. Seniors Who Took Remedial Coursework



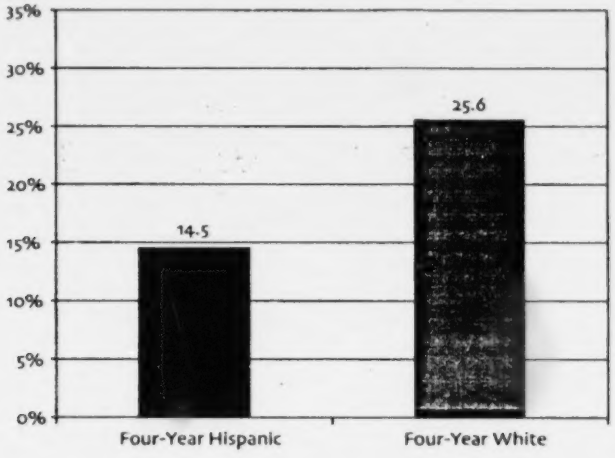
Among college seniors Hispanics are much more likely to have taken a remedial education course than White students are. However, in both cases the percentages are much smaller than the percentages for students who needed remediation at entry. Thus, at a gross level it appears that many remediation students do not reach senior status, regardless of ethnicity.

Figure 23. Seniors Who Received Instruction in Study Skills



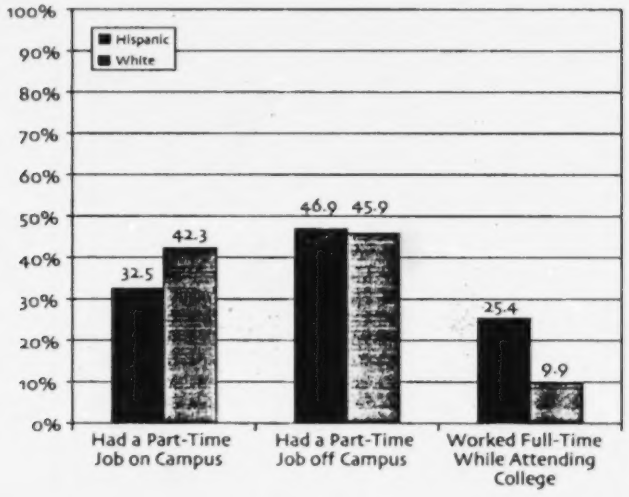
Although Hispanic freshmen appear to be less prepared in study skills than White students, White seniors are just as likely as Hispanics seniors to have received assistance to improve their study skills.

Figure 24. Seniors Who Received Financial Aid Services



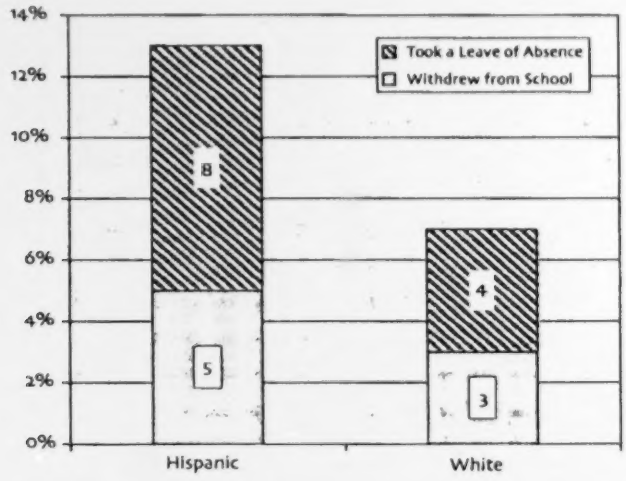
Although Hispanic students at entry show greater financial need, Hispanic seniors are less likely than Whites seniors to receive financial aid services.

Figure 25. Seniors Who Worked while Attending Classes



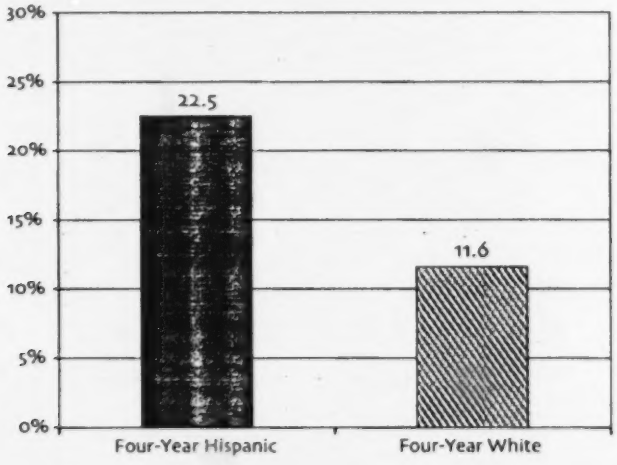
Hispanic students are more likely to work full-time while pursuing their degrees than White students, and Hispanics who work part-time are less likely to have jobs on campus than White students.

Figure 26. Seniors Who Experienced a Break in Enrollment



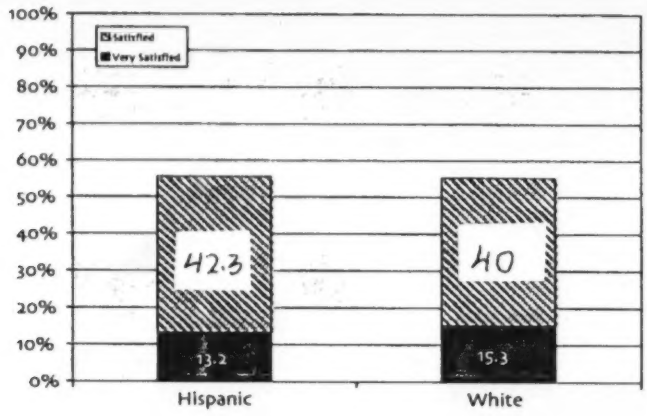
Traditionally, disruptions in enrollment have been associated with greater risk of dropping out of college without a degree. Among college seniors Hispanics are much more likely to have withdrawn from school or taken a leave of absence than White seniors.

Figure 27. Seniors Who Began College at Another Campus



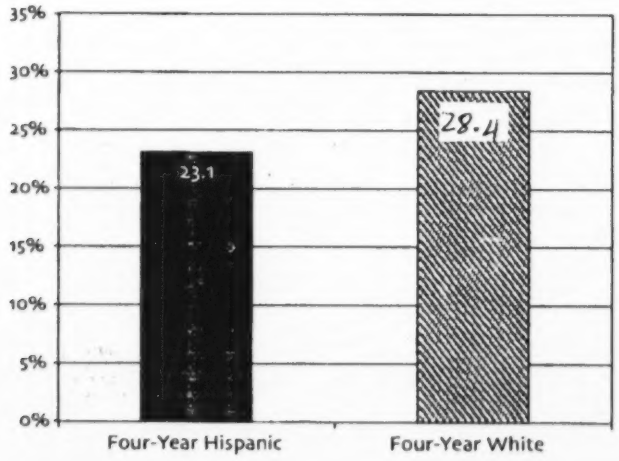
Hispanic seniors are more likely to be transfers from another college than White seniors; therefore, more Hispanics experience another transition adjustment after their freshman year as they move from one campus to another.

Figure 28. Level of Seniors' Satisfaction with Academic Advising



Just over 50 percent of both Hispanic and White seniors expressed satisfaction for the academic advising they received on campus.

Figure 29. Level of Emotional Support and Encouragement from Faculty



Hispanic seniors are less likely than White seniors to feel like they had received sufficient emotional support or encouragement from campus faculty or staff.

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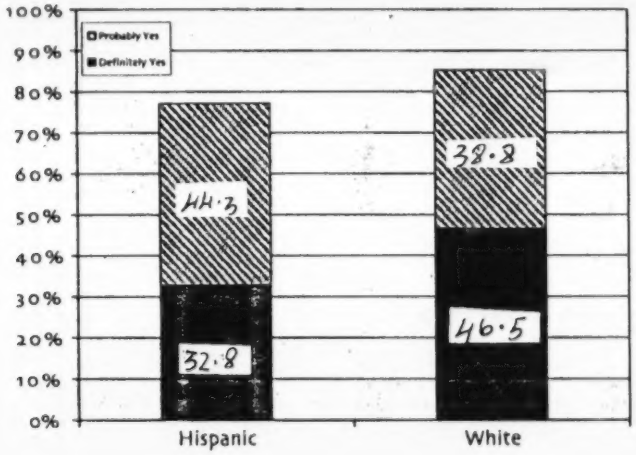
Figure 30. Would You Choose to Reenroll at This College?



Source: The Senior Survey, administered by the Higher Education Research Institute, 1999.

If students had to choose a college again, 85 percent of White students would reenroll at the same college while only 77 percent of Hispanic students would choose the same college.

Appendix A
Selected Secondary Data Sources

CIRP Data. The HERI data on freshmen now capture 5,800 Hispanic respondents. The HERI staff members crosscheck their findings with national counts gathered by NCES, so they are satisfied that they continue to produce sample data that represents the national population of incoming freshmen. Hence, the CIRP data are the best single source for producing indicators about the distribution of new Hispanic students at risk. The data reported herein represent original tabulations. (Contact is: Higher Education Research Institute, UCLA Graduate School of Education and Information Studies, Los Angeles, CA 90095-1521.)

CSS Data. As stated in the text, the HERI staff do not describe the responses from surveys of seniors as based on a representative national sample. So I caution everyone not to conjecture from comparisons made between the freshmen and seniors regarding common needs and experiences. The number of Hispanic respondents in the CSS, for instance, is only 500. The most important reasons for citing some of the senior data were to show how many students work while attending school and to show that many Hispanic students make it to the upper division curriculum even though they were directed to attend remediation courses in math or English in their freshman year. The data reported herein represent original tabulations. (Contact is: Higher Education Research Institute, UCLA Graduate School of Education and Information Studies, Los Angeles, CA 90095-1521.)

University of California Data. Between fall 1994 and fall 1999 the number of new freshmen entering the University of California from California public high schools ranged from 20,000 to 24,000 students. In fall 1999 there were 2,665 new Hispanic freshmen. Eligibility rates are based on these fall cohorts. Each year approximately 10,000 students enter the system as transfers from California Community Colleges. In the 1999–2000 college year there were 1,432 new Hispanic transfers. Retention and graduation rates are based on fall cohorts of new freshmen and transfers. (Contact is: University of California, Office of the President, http://www.ucop.edu/.)

California State University Data. Between fall 1994 and fall 1999 the number of new freshmen entering California State University from California public high schools ranged from 23,000 to 30,000 students. In fall 1999 there were 6,573 new Hispanic freshmen. Eligibility rates are based on

these fall cohorts. Each year approximately 46,000 students enter the system as transfers from California Community Colleges. In the 1999–2000 college year there were 9,286 new Hispanic transfers. Retention and graduation rates are based on fall cohorts of new freshmen and transfers. (Contact is: California State University, Office of the Chancellor, http://www.calstate.edu/.)

California Community Colleges Data. Between fall 1994 and fall 1999 the number of new freshmen entering California Community Colleges from California public high schools ranged between 98,000 to 105,000 students. In fall 1999 there were 28,618 new Hispanic freshmen. Transfer rates are based upon the number of students from these fall cohorts who matriculate to either the University of California or California State University. (Contact is: California Community Colleges, Chancellor's Office, http://www.cccco.edu/.)

California Postsecondary Education Commission Data. This state agency is charged with collecting annual data on students attending the University of California, California State University, and California Community Colleges. They augment the higher education data with information about California students attending public high schools. The Commission served as the source for estimates on college-going rates and the proportion of high school graduates who were eligible to attend either the University of California or California State University. (Contact is: http://www.cpec.ca.gov/.)

CSRDE Data. The report relied on the CSRDE data for national graduation rate information because it seems to be the best available source. Other sources appear to rely too heavily on the graduation reports of elite schools. In recent years the National Science Foundation has relied on CSRDE data to track aspects of baccalaureate attainment. (The publication with the CSRDE results reported herein came from a newsletter-like document printed by the University of Oklahoma. Its identification is: Consortium for Student Retention Data Exchange, 1997–98 CSDRE Report: The Retention and Graduation Rates in 232 Colleges and Universities, Center for the Institutional Data Exchange and Analysis, University of Oklahoma, pp. 1–6, ND.)

Appendix B
The Primary Data

Most of the focus groups were selected from campuses that were members of the Inter-University Program for Latino Research (IUPLR). IUPLR is a consortium of 16 Latino research centers based at major universities in most regions of the United States. It is the only nationwide university-based research organization bringing together scholars from a wide variety of disciplines to conduct policy-relevant research on Latinos. Its primary objectives are to expand the pool of scholars and leaders, to strengthen the capacity of Latino research centers, and to facilitate the availability of policy-relevant, Latino-focused research. IUPLR offers training programs, sponsors interdisciplinary research pertinent to Latinos and the nation as a whole, and creates links among scholars, policy experts, public officials, and community advocates. Since its inception in 1983 IUPLR has helped to call attention to the contributions and needs of Latinos in the United States. It has served as a catalyst and facilitator of intellectual inquiry at the local, state, regional, national, and international levels, by linking scholars, policymakers, and community organizations around issues of concern to Latino communities and the nation as a whole. Past projects have covered topics ranging from labor market issues to health to education.

Headquartered at the University of Notre Dame, IUPLR is composed of member centers in ten states and the District of Columbia. The IUPLR member centers are:

- Hispanic Research Center, Arizona State University
- Cuban Research Institute, Florida International University
- Dominican Studies Institute, City College, City University of New York
- Centro de Estudios Puertorriqueños, Hunter College, City University of New York
- Julián Samora Research Institute, Michigan State University
- Center for Latino Initiatives, Smithsonian Institution
- Stanford Center for Chicano Research, Stanford University
- Mexican American Studies & Research Center, University of Arizona
- Chicano Studies Research Center, University of California, Los Angeles
- Latino/a Research Center, University of Colorado at Denver

- Mauricio Gastón Institute for Latino Community Development & Public Policy, University of Massachusetts
- Southwest Hispanic Research Institute, University of New Mexico
- Institute for Latino Studies, University of Notre Dame
- Center for Mexican American Studies, University of Texas at Austin
- Chicano Studies Program, University of Texas at El Paso
- Center for Chicano Boricua Studies, Wayne State University

The pool was augmented with two campuses outside the IUPLR network. One was a comprehensive state university; the other was a community college.

Taken as a whole, the pool offered variety regarding the number of Hispanic students on campus, the size of the campus, and the concentration of Hispanics. The range of Hispanic undergraduates was between 500 and 15,000, with an average of about 3,750. The size of the campuses varied from just over 5,000 undergraduates to more than 37,000; the average was 20,000 undergraduates. The Hispanic percentage at the campuses spanned a low of 2 percent to a high of 71 percent. The average was about 20 percent. The distribution for each of these enrollment indicators is illustrated after the text in figures B1 to B3.

There was also variety concerning retention and graduation rates across the pool. Figure B4 charts first-year retention rates and six-year graduation rates for those campuses that disclosed information. First-year retention rates ranged from around 60 to 90 percent and six-year graduation rates ranged from roughly 25 to 85 percent. Averages were 76 percent for first-year retention rates and 46 percent for six-year graduation rates.

The intersection of Hispanic concentration and Hispanic graduation rates for the pool is described in table B1. On balance, the schools with higher Hispanic concentrations have lower admission standards than schools with lesser Hispanic graduation rates. Conversely, the schools with greater Hispanic graduation rates have higher admission standards than schools with lesser Hispanic graduation rates.

Table B1. Student Profile for the Pool of IUPLR Campuses

Hispanic Percentage for Undergraduates	Six-Year Hispanic Graduation Rate			
	Less than 40%	40–49%	50–59%	60% or more
Less than 10%	1		1	1
10–24%	3	2	1	1
25–24%	1			
50% or more	1	1		

The table below describes the intersection of Hispanic concentration and Hispanic graduation rates for the campuses that provided the focus group participants.

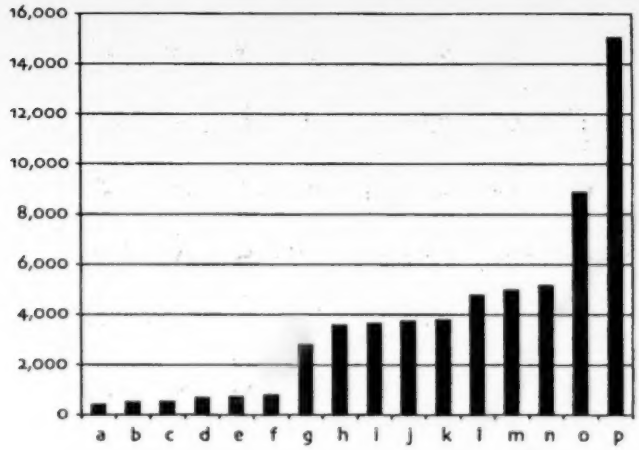
Table B2. Student Profile for the Selected IUPLR Campuses

Hispanic Percentage for Undergraduates	Six-Year Hispanic Graduation Rate			
	Less than 40%	40–49%	50–59%	60% or more
Less than 10%	1			1
10–24%	1	1		
25–49%	1			
50% or more	1			

For the most part, campuses recruited a minimum of 15 freshmen and 15 seniors to participate in the focus groups. Two campuses recruited nearly 30 freshmen and 30 seniors. Altogether, a little over 200 students offered their opinions and perceptions. Nearly all the students were Hispanic. Most of the remaining students were members of other ethnic minority groups.

Campuses also recruited personnel who were informed about admissions, academic advising, financial aid, and other student services for participation in the staff focus groups. The minimum number at any campus was 6 staff members. Collectively, over 50 professional workers contributed their observations to the study.

Figure B1. Number of Hispanic Undergraduates in the Pool of IUPLR Campuses



Note: In Figures B1–B4, the 16 members of the IUPLR consortium are represented by the letters a through p.

Figure B2. Number of All Undergraduates for the Pool of IUPLR Campuses

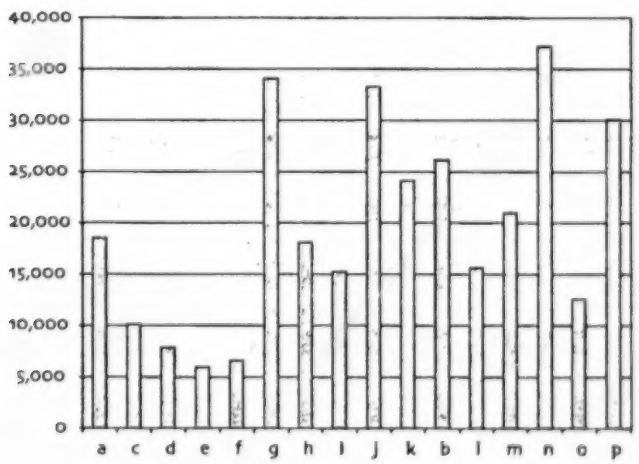


Figure B3. Hispanic Percentages for the Pool of IUPLR Campuses

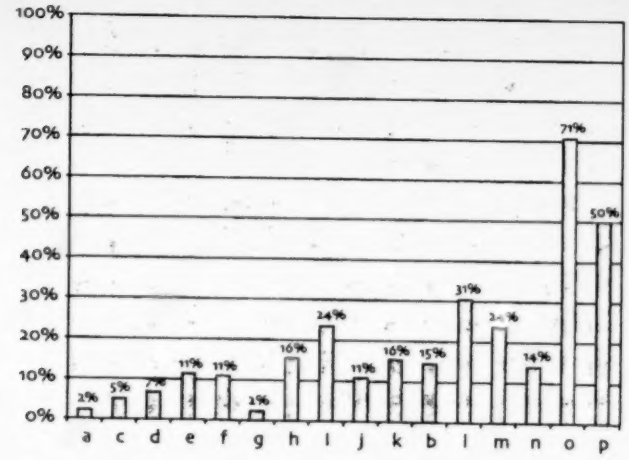
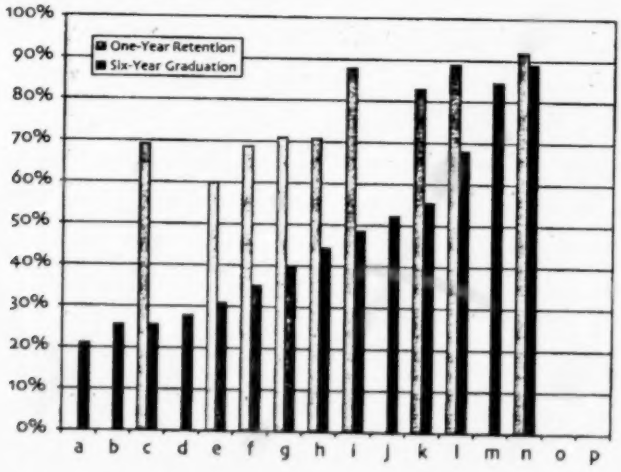


Figure B4. One-Year Retention Rates and Six-Year Graduation Rates for the Pool of IUPLR Campuses



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Appendix C
Selected Statistics on Hispanic-Serving Institutions

Top 25 Colleges and Universities Granting Bachelor's Degrees to Hispanics

Size Rank	College/University	Degrees Awarded to Hispanics	1999–00 Total FTE* Hispanic
1	Florida International University	2004	8982
2	The University of Texas-Pan American	1114	7065
3	The University of Texas At El Paso	1069	6856
4	The University of Texas At Austin	1060	
5	The University of Texas At San Antonio	889	5486
6	San Diego State University	867	375
7	California State University-Los Angeles	858	5344
8	University of California at Los Angeles	808	
9	California State University-Fullerton	735	
10	California State University-Northridge	714	4298
11	University of New Mexico-Main Campus	711	4134
12	University of Arizona	706	
13	University of California-Berkeley	674	
14	Texas A&M University	667	
15	California State University-Fresno	654	3630
16	University of Florida	627	
17	New Mexico State University-Main Campus	614	4100
18	California State University-Long Beach	608	
19	Arizona State University	562	
20	Southwest Texas State University	541	
21	University of California-Santa Barbara	526	
22	University of Houston	519	1750
23	University of Southern California	507	
24	University of Central Florida	499	
25	California State Polytechnic University-Pomona	494	

* FTE = Full-time equivalent students.

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